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Lesser Spotted Eagle *Aquila pomarina* attempt on a Corn Crake *Crex crex*
Photo: © Doug Smith

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TABLE OF CONTENTS

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Taita Falcons on the brink – new information and an evaluation of the captive breeding programme

Kit Hustler, Kevin Barry & Rob Jeffery

Introduction

The Batoka Gorge, below Victoria Falls, was considered to be the stronghold of the Taita Falcon *Falco fasciinucha* with the nest site closest to the falls being probably the most easily accessible and famous since 1957, when they were first found there by Leslie Brown. During the war years, prior to 1980, nest sites were protected by a minefield, which limited access to the gorge until the late 1990s, when it was cleared. Taita Falcons were originally found in the 4th gorge below the Victoria Falls Hotel and bred regularly there on different sides of the river and at different distances from the waterfall. Between 1982 and the mid-1990s they were regularly seen at the junction between the 4th and 5th gorges and bred in the vicinity on one side of the gorge or the other during this time (Figure 1; KH, pers. obs.). In mid-1996 one of the pair disappeared and the remaining bird was seen calling and displaying on favourite ledges and potholes in the territory, presumably soliciting for a mate. This behaviour continued for a week or so, but then this single bird also disappeared. Taita Falcons have not been reliably recorded at this spot since then.

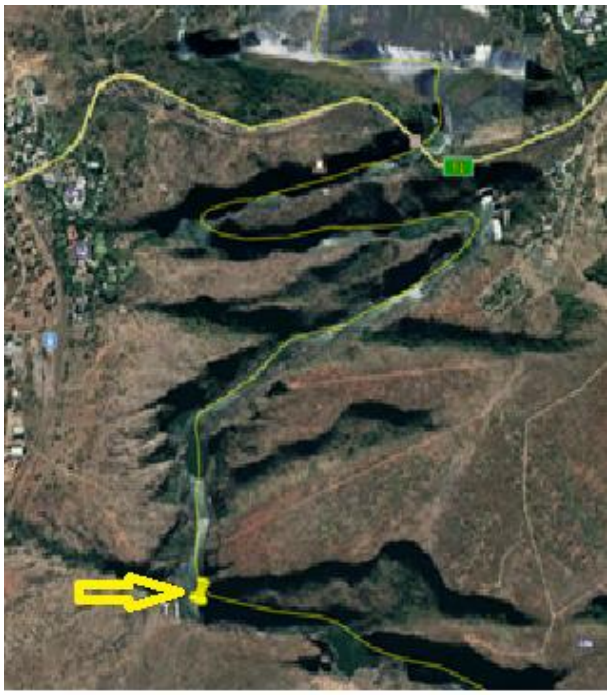

Figure 1. The location of Taita Falcon pair (T1) at Victoria Falls (1983-1996), after which the site was abandoned.

One of the problems encountered when surveying Taita Falcons in the Batoka Gorge, particularly close to Victoria Falls, was the presence of several pairs of Peregrine Falcons *F. peregrinus*. Any falcon seen in the gorge is assumed to be a Taita Falcon, when in reality it is probably a Peregrine. There were three pairs of Peregrines breeding on the cliffs illustrated in Fig. 1 from the early 1980s to the mid-1990s, when T1 was being monitored by KH. Taita Falcons are generally inactive for much of the day, with most of their activity taking place around dawn and dusk. Even at this time, it required considerable concentration to keep them in view as they mixed with the large swirling flocks of African Black Swifts *Apus barbatus* that appeared at dusk. This was not a problem with the much larger Peregrines.

The proposed construction of a hydroelectric dam on the Zambezi River below Victoria Falls posed a threat to some pairs and this was the rationale for the raptor surveys carried out in the Batoka Gorge by the Zimbabwe Falconry Club (ZFC) which focussed on Taita Falcons. The idea that Taita Falcons should be taken into captivity for breeding was considered at the second conference on African Predatory birds in 1982 at Golden Gate National Park, South Africa. Discussions involved representatives from the Peregrine Fund, and egg collectors and falconers from South Africa but without any initial inputs from the ZFC, as far as we can determine. The wheels were set in motion to collect chicks and take them to the United States.

Tom Cade and Jim Weaver visited Zimbabwe and Zambia in 1983 with the aim of collecting chicks to establish a captive breeding programme. The initial permit to collect chicks from Zimbabwe was declined because there was no evidence that the Taita Falcon population was in decline and the biology of the species was so poorly known. However, a permit was obtained to collect birds in Zambia and that resulted in four chicks being taken to the US to start the captive breeding programme. The ZFC apparently got involved at this point, with the objective of also setting up a local captive breeding programme (Hartley 2002a).

The rationale, as we understand it, was to set up captive breeding populations as an insurance against human-induced extinctions in the wild, with young from the programme being released into suitable habitat as and when the need arose. We know that young have been produced by both programmes but as far as we are aware, none have been released into the wild from either of them. Information on age at first breeding, details of egg sizes, weights, clutch sizes, laying intervals, roles of sexes during incubation, growth rates of nestlings and number of infertile eggs laid has been published (Hartley 2002a) but very little of this information has been confirmed by studies on wild birds with reasonable sample sizes. Incidental data obtained from wild pairs has also been published (Hartley *et al*. 1993) but there are no data on the annual reproductive success of wild pairs over an extended period available from the survey.

No breeding records and very few sightings of adults were made during visits to known nests in 2000 and 2001 (Hartley unpublished notebooks). The last reported sighting from Zambia was in 2005 and there were no birds at any of the known breeding sites in 2006 (D. Parkes, pers. comm. to KB), but apparently there was a pair present at one breeding site in 2007 (A. Middleton, in Jenkins *et al*. 2019), but it can no longer be found readily in the Victoria Falls Gorges (Dowsett 2009). A recent survey (Jenkins *et al*. 2019) did not record any Taita Falcons in the gorges below Victoria Falls either. This seems to have been the situation in the gorges for the last 25 years and we

wonder why concerns about their status there have not been raised earlier? They are difficult to survey and unobtrusive during the breeding season, so repeat visits to nesting areas are required to determine the presence or absence of a breeding pair.

In this paper we attempt to unravel the success or otherwise of the captive breeding project and to determine whether any of the objectives were achieved. We construct a simple population model using historical data from a variety of sources and consider the possible impacts that the removal of chicks from successful nests in the wild might have had on their population in the longer term. We also consider the status of the Taita Falcon in Zimbabwe in light of recent discoveries in the Niassa Province of Mozambique (Brink 2022).

The goal of the captive breeding program

In the early 1980s, there was no evidence that the population of Taita Falcons was in decline and it is unclear why a captive breeding programme was considered necessary. In spite of this, the stated goal was to establish five successful captive breeding pairs in Zimbabwe. This would probably necessitate at least 10 captive pairs, due to perceived productivity issues, and to enable the release of their progeny back into the wild (Hartley 2002, Deacon 2009). The need for the programme was the result of interest in the proposed Batoka Gorge dam, which would flood prime falcon habitat and potentially threaten the species with local extinction. Captive-bred birds could provide an insurance against this and could be released into areas of suitable habitat should the need arise.

The American initiative

We do not have access to unpublished reports about the project (e.g. Jenkins *et al*. 2019) and what is reported on below has been gleaned from publicly available sources and personal communications with individuals.

The Peregrine Fund initiated the captive breeding project in 1983 and was involved, presumably because of their success in restoring Peregrine Falcon populations in America that had been decimated by DDT and other pesticides. The initial intent, as we understand it, was that Taita Falcons bred in captivity could be released back into the wild, should data on their population status indicate the need to do so, and this was still the case in 2015 (Bill Heinreich 2015, https://youtu.be/WI4fVTFr39g).

Four nestlings (3 females, 1 male) were removed from two nests in Zambia and taken to the Peregrine Fund breeding facilities in America in 1983 (Hartley 2002a). A male, which was the only surviving chick in the nest, was obtained from the Songwe Gorge and all three females from a nest in the Serenje district. An injured juvenile male, obtained from the Chimanimani district in Zimbabwe was subsequently added to these birds by the ZFC in 1984, when Weaver visited Zimbabwe again and did an extensive investigation of the Batoka Gorge (Weaver *et al*. 2002).

The initial captive population therefore amounted to a very small gene pool, i.e., 3 related females and two unrelated males. In 1988 both the chicks, a male and female, from the same nest in Chizarira were collected and added to this captive population.

One pair laid a clutch of three eggs in 1988, when they were five years old, but none of them hatched 1988. This pair produced three chicks in 1989. Another pair bred in 1991 and apparently continued to do so until 2002. At least six other pairs in this population (F1 crosses from the originals?) have produced young (Hartley 2002). Some young birds bred in 1996 (https://youtu.be/3zYnYk0z-j4) and seven pairs were housed at one breeding facility which had successfully reared Taita Falcons since 1994 with 21 chicks being reared between 2002-2004 (Dean *et al*. 2006). There were 16 Taita Falcons at the World Center for Birds of Prey in 2018 (Anon 2018).

Figure 2. Taita/Barbary falcon hybrid, 2014. Screenshot from https://youtu.be/v6MrR-De72E.

Taita Falcons have been hybridised with Barbary Falcons *F. pelegrinoides* (Figure 2) for nearly 20 years and perhaps longer (2006, 2009, 2014) in the United States. There are records of these hybrids known from 2006 and before (https://youtu.be/1CohN9FSD0o; https://youtu.be/v6MrR-De72E). There is, according to the soundtrack on https://youtu.be/v6MrR-De72E, one named individual in 2014 who is "making them consistently and one or two a year, but with the capacity to make half a dozen if he wanted to." Some of these hybrids are for sale (Garcia 2009).

It is not known how these breeders got access to Taita Falcons to create cross breed hybrids but a Facebook post by Pete Jungemann (2020) indicates that excess progeny from the breeders were made available to falconers in the USA. The ZFC were aware that the hybridisation of falcon species was being carried out (Dunkley 2002) and it cannot be ruled out that some members at least knew that Taita Falcons or their progeny collected from Zimbabwe were involved. As far as anyone knows, no birds have been released back into the wild either in Zambia or Zimbabwe.

The Zimbabwean initiative

We had no response from requests for information from the ZFC and what is reported on below has been derived from publicly available sources and personal communications with individuals involved in the project.

Chicks were collected from two nests in the Batoka Gorge in 1991 and from the nest in Chewore in 1992 and 1993. Three males (F1 generation from two of the captive American pairs) were obtained from the Peregrine Fund breeding programme in 1993 (Hartley 1994), giving four pairs in total. The mothers of the F1 males all came from the same nest in the Serenje district in Zambia and these birds would have been closely related. The father of one of them was the injured wild male from Chimanimani. The other two were brothers and their father also came from Batoka Gorge. Two of these pairs failed to breed at all. The only pairs that did were made up from the two sisters, collected from the same nest in the Batoka Gorge. This would

have impacted significantly on the genetic diversity of this population. These birds were also five and six years old when they started breeding and what follows has been obtained from Tables 2 & 4 in Hartley (2002a).

Twelve clutches (eight of 3 eggs and four of 2eggs) were laid between 1996 and 2001. Twelve young were reared from 32 eggs laid (0.375 chicks/egg laid) and in only 1 instance did all laid eggs hatch, from one clutch of two eggs. One pair reared seven chicks from 17 eggs laid (five clutches of eggs and one of 2 eggs) and the other five chicks came from 12 eggs laid (two clutches of 3 eggs and2 thee of 2 eggs). All other breeding attempts had at least one or more infertile eggs in the clutch (n = 23). Four clutches (three of 3 eggs and one of 2 eggs) were all infertile (Hartley 2002a) and 63% of all eggs did not hatch. Two pairs produced 12 chicks in 11 breeding attempts between 1996-2001; this is about 1.1 chicks per breeding attempt and not the 1.5 chicks reported in Hartley (2002a) from the same data set.

Population model

The population dynamics of Taita Falcons are poorly known so we constructed a basic model based on the number of fledglings produced per breeding pair/year. In the absence of data for wild Taita Falcons, we used mortality data for Peregrine Falcons in America (Kaufman *et al.* 2003). Taita Falcons start breeding in captivity when six or more years old (Hartley 2002a) and this was assumed to be the same for wild birds.

We collated breeding data using the available information on eggs laid, chick hatching, survival and fledging to generate rudimentary population data for Taita Falcons in the Batoka Gorge (Table 2). Pre-1982 data were obtained from published sources (e.g. Colebrook-Robjent 1977, Dowsett 1983) and post-1982 data from what ZFC survey information we could locate and personal observations (KH). These data were divided into pre- and post-1982 time periods because the removal of chicks for the captive breeding programme was initiated in 1983.

Table 1. Possible fecundity of a pair of Taita Falcons in scenarios where up to 3 chicks fledge from the nest every year. First year survival rate = 0.28; second and subsequent years up to 6 years old survival rate = 0.86 (based on Peregrine Falcon mortality data from Kaufmann *et al*. 2003).

	Number of chicks fledged		
Fledglings/breeding attempt	1	2	3
Survive first year	0.28	0.56	0.84
Survive to breeding age 6 years later (A)	0.13	0.26	0.52
Annual survival of breeding pair (B) (2 x 0.86)	1.72	1.72	1.72
Needed to maintain breeding pairs (C = 2-B) annually	0.28	0.28	0.28
Net increase/decrease (A-C)	-0.15 (decrease)	-0.02 (stable)	0.3 (increase)

Only 13% of chicks survived to adulthood (using the Peregrine chick mortality data in Kaufman *et al*. 2003) six years later (Table 1). If only 1 chick is fledged/pair, the net difference between chicks being recruited into the adult population and chick mortality is negative and is not enough to replace annual adult mortality (Table 1). The probable minimum number required to maintain a wild population of Taita Falcons is for two chicks to fledge per active pair annually (Table 1). Recent breeding data from seven breeding attempts in the same season in 2021 in northern Mozambique, report an average of two chicks fledged per breeding attempt, from two clutches of one egg, three of two eggs, and two of three eggs; (Brink 2022). This confirms the prediction that two chicks per nest is probably necessary for the maintenance of a healthy population.

Table 2. Available population data on wild Taita Falcons, Zambia and Zimbabwe combined. Pre- and post-1982 values for the Batoka Gorge were used to calculate the numbers used in the model that follows. The number of presumed fledglings per attempt post-1982 after chicks removed for captive breeding shown in brackets. * the number of infertile eggs in nests is probably an underestimate because not all nest contents were examined closely.

Location	**Breeding attempts**	**Eggs laid**	**Infertile eggs***	**Chicks seen**	**Proportion of eggs hatched**	**Chicks fledged**	**Proportion of chicks seen which fledged**	**Number Fledging per attempt**
All	19	56	15	36	0.64	32	0.89	1.7
Zimbabwe only	16	47	9	33	0.70	29	0.88	1.8
Batoka Gorge	12	37	8	22	0.59	21	0.95	1.42
pre-1982	7	22	6	12	0.54	12	1.00	1.7
post-1982	5	15	2	10	0.66	9	0.90	1.8 **(1.0)**

There was no statistical difference between the number of chicks fledged per attempt prior to 1982 and the number that could have fledged post-1982, if no chicks had been collected for the captive breeding programme (Table 2). This suggests that the breeding success in the Batoka Gorge was similar over time. They probably bred for five years at a minimum, giving a possible adult life span of 11 years. Manipulating the mortality values showed their impact on the overall population over time. There was no difference in the pre-1982 clutch size (3, n = 6) and the post-1982 clutches (3, n = 5), so the average clutch size for all breeding pairs was maintained at 3 eggs. This value was multiplied by 0.78 to take the average number of infertile eggs per wild clutch into account. The proportion of chicks that hatched and are known to have fledged was calculated using data for each time period.

First year survival of chicks was estimated by multiplying the number of fledged chicks by 0.23. After that the number of chicks surviving was multiplied by 0.8 until breeding age was attained at six years old. At the start of 1978, the number of adults surviving was multiplied by 0.83, which is the same as the mean number of adult Peregrines surviving each year (Kaufman *et al*. 2003).

The model began in 1978 because this is when chicks replacing the adults after 1983 would have hatched. At the time there were an estimated six pairs of Taita Falcons in the Batoka Gorge. We assumed that three of these pairs were breeding at the start of the model and believe this is realistic. Breeding data from South Africa suggest that half of all known Taita Falcon pairs bred in 2011 (Jenkins *et al*. 2012) and is confirmed by Brink (2022) where half the pairs located in Mozambique were known to have bred in 2021, although these data may be a minimum value and did not represent pairs that failed earlier in the breeding season.

If the number of young birds surviving to their sixth year when they could start breeding, was 0.2 or greater, it was assumed that one adult was recruited into the population remaining at the end of the previous year (0.2 chicks surviving every year for 5 years = 1 new adult in year 6 (5 x 0.2 = 1). For example, if there were four breeding adults present in 1978 at the end of the year there would be 4 x 0.83 = 3.32 adults surviving. Adding one chick from breeding attempts in 1973 means that 4.32 birds would be present, and so on through to 2001. It was assumed that replacement adults were initially hatched in the Batoka Gorge but this was unproven, but the figures used to calculate survival would have been applicable to young birds being recruited from anywhere.

Model without chick removal

We started with three successful breeding pairs even though the incomplete ZFC survey data available to us indicated that the maximum number of confirmed breeding pairs in the years that they surveyed the gorges was 2. This allowed us to generate a possible scenario of the population dynamics without the removal of chicks for the captive breeding programme.

The first run of the model showed no change in the number of breeding pairs over time. We increased the rates of mortality, to reflect the probable mortality more closely. First year survival rate was changed to 0.18 (from 0.23) to reflect the documented vulnerability of recently fledged birds to predation by other raptors (Hartley 2002d), 0.75 (from 0.80) for immature survival and 0.84 (from 0.83) for adult survival. With these new data, the model showed that the Taita Falcon population remained stable with 3 breeding pairs between 1978 and 2001.

Model with chick removal

We substituted the number of chicks fledged with actual data for the years when chicks were removed. In 1983 the first chicks were removed for captive breeding and only two chicks were known to have fledged. Poor breeding success was reported in 1984 when extensive examination of nest sites occurred (Weaver *et al*. 2002) and only one chick fledged. In 1991 three chicks were removed from a possible five, leaving only two which could have fledged.

The model predicted that the first breeding pair would disappear in 1988/89 (Figure 3) and this coincides with the report by Hartley & Mundy (1990). The model then predicted that the next pair would disappear in 1996 and this is when the closest breeding pair to Victoria Falls disappeared (KH, pers. obs.). There were no breeding pairs after 1999 according to the model (Figure 3) with only one bird seen in 2000 and none thereafter.

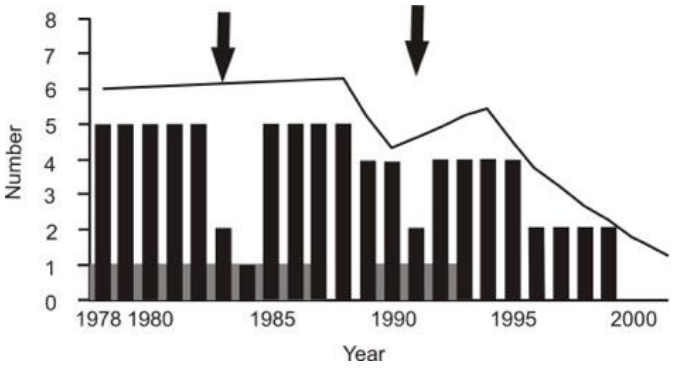

Figure 3. Results from the population model showing the number of chicks fledged (dark bars), the impact of chick removal (arrowed) on recruitment (grey bars) and the trend of the adult breeding population (solid line) of Taita Falcons in the Batoka Gorge between 1978-2000.

This follows the actual situation observed by the ZFC monitoring team in the Batoka Gorge at that time very closely (Hartley, unpublished notebooks) and suggests that recruitment into this population might have been dependant on survival of the chicks produced six years before. The decline was confirmed by independent observations from the Zambian side of the river much later (Dowsett 2009). Running the model with these data for the years concerned indicated that the removal of chicks had a significant long term impact on the population.

It can be argued, correctly, that while chicks produced in the gorge were not recruited back into the population, pairs breeding elsewhere could have been producing these new adults and the model is therefore unrealistic. However, is it a coincidence that a pair disappeared in the Batoka Gorge, six years after the first chicks were removed from there and another pair six years after the next batch of chicks were removed?

The unanswered question is about recruitment and, unfortunately, there are no data about this aspect. It is not known if the chicks surviving from these Batoka pairs were normally recruited back into the population, but a reduction in the number of chicks fledging, which resulted in the decline in adults in the Batoka Gorge six years later, suggests that it might be so. Alternatively, if there were unattached adults coming into the gorge from elsewhere, then the decline in their number suggests that conditions became unsuitable in the late 1980s when the decline in the number of adults began and it was much more widespread. This might have manifested itself initially by increasing numbers of pairs that were not breeding or failing at an early stage in the nesting cycle, but the survey was not geared to collect these sorts of data. Brink (2022) suggests that there may possibly have been recruitment from the recently discovered population in northern Mozambique into Zimbabwe, but there is no evidence that this occurred in the Batoka Gorge between 1990 and 2019. If birds had come from elsewhere, presumably there would have been signs of population recovery in the gorge by now? At a minimum, it seems that the removal of chicks for the captive breeding program between 1983-1993 contributed to the total disappearance of Taita Falcons from their known breeding places from 2000 onwards.

Prey abundance and hunting behaviour

Jenkins *et al*. (2019) suggest that declining river water quality and its attendant effects on insect abundance could have reduced

numbers of Black Swifts, possibly resulting in a reduction in prey availability for Taita Falcons. There is evidence of sewage contamination from the towns of Livingstone and Victoria Falls (Feresu & van Sickle 1990) but the water quality of this section of the Zambezi has been improved by the construction of settling ponds close to Victoria Falls since the mid-1990s. In any case, midges (Chironomidae) usually occur in large numbers in sewage ponds (Failla *et al*. 2015) and polluted rivers and these insects would be a rich food source for the Black Swifts in the Batoka Gorge. The numbers of swifts seen at the Batoka Gorge in December 2018 were not obviously less than those seen in the mid-1990s (KH, pers. obs.). The swifts leave before first light and return close to last light and do not feed in and above the gorge during the day in large numbers. Black Swifts appear in large numbers in the late afternoon, when the Taita Falcons were most active, but hunting falcons made no attempts to catch them during many hours of late afternoon observation between 1992 and 1996.

The most frequently observed hunting method by the falcons involved rapidly gaining height in the updraft that is a feature of the gorge in the afternoon and they often soared in the swirling flocks of swifts. They used the updraft to gain height so that they could target the large flocks of small passerines that flew over the gorge from Zimbabwe to roost in Zambia in the late afternoon every day.

With practice, it was possible to detect these flocks from a distance at the observation point and watch the hunt unfold from start to finish. The hunt was initiated when the falcon stooped, with completely closed wings, in the direction of the flock, which did not appear to be aware of it as no obvious evasive action was taken. Prey was caught by picking an individual out of the flock from above, or occasionally from underneath, as the falcon used the speed of the stoop to rapidly pass through the flock on the way up. Individuals caught by the falcon were not obviously lagging behind or on the edge and were mostly in the middle of flock. Prey was easily carried to the nest cliff using the momentum of the stoop and immediately cached. After a short time, the falcon took off, gained height in the updraft in the gorge and attempted another hunt.

It was possible to see the falcons hunting regularly by arriving at the observation point 90 minutes before sunset. The male of T1 was seen to catch three birds from different flocks in just over 30 minutes one evening while there were chicks in the nest. Towards the end of 1995, the frequency of and size of these flocks declined and in 1996 they were irregularly seen (KH pers. obs.). Shortly afterwards this pair disappeared.

Similar observations were made at the Gwayi/Zambezi confluence, where a pair of Taita Falcons were seen hunting flocks of small passerines going to roost late in the afternoon. The flocks have disappeared from here, along with the falcons that hunt them. In December 2018, while visiting the known historical nest site at Songwe Gorge in the late afternoon, we noticed the almost complete absence of small flocks of passerines flying over it to roost in Zambia, much like the situation in 1996. It seems that the shortage of small passerine prey has persisted in the Batoka Gorge close to Victoria Falls. The numbers of possible aerial prey species (swifts and martins) seemed to be the same (KH, pers. obs.).

Disturbance by helicopters and tourists

Adventure tourism and helicopter traffic in the gorges might have caused excessive disturbance (Jenkins *et al*. 2019) but we believe this is overstated. Helicopter flights taking tourists on the "Flight of the Angels" were regular (certainly twice if not more an hour) in the early 1990s when the T1 pair was resident and breeding successfully (KH, pers. obs.). The civil aviation regulations did not permit flights below 500 m and only in the immediate vicinity of the waterfall. They did not fly down the gorge regularly as the demand from tourists was to undertake the "Flight of the Angels" over the waterfall.

Likewise, white water rafters passed below T1 regularly every day and the falcons bred there successfully so it is not clear why this activity has been implicated as the major disturbance of Taita Falcons in the Batoka Gorge (Global information Network, 2019). Recently constructed zip lines across the gorge would obviously have an impact, but the Taita Falcons had disappeared from T1 long before this happened, but these would probably preclude any re-colonisation of these habitats.

Concern was expressed about the possible disturbance of tourists at breeding sites (P. Aust pers. comm. to KH) but without any justification. Between 1993-1996, KH escorted many birdwatchers to an observation point 400 m from the T1 breeding cliff. The locality of this pair was known internationally and any number of independent bird watchers were encountered watching these falcons from this clifftop viewing site. One of this pair was observed to feed chicks at the nest on the Zimbabwean side, from the cliff directly opposite the nest on the Zambian side of the gorge, while the number of chicks was being determined, (KH, pers. obs.) so distant observer impact on breeding success was negligible. There was no impact on the breeding success of this pair and young birds fledged successfully every year, except when chicks were removed from it for the breeding programme. In our opinion the direct close approach of a climber investigating a possible nest and/or removing a chick from an active breeding site (Weaver *et al*. 2002) is a much more significant disturbance to nesting falcons than helicopters flying high overhead, white-water rafters some 100 m below or observing them from a distance (without any obvious impact).

Inbreeding depression and disease

Could these factors affect the Taita Falcon? The fact that no breeding occurred in half the occupied territories suggests it might. There was little consideration of possible genetic complications of taking closely related falcons into the captive breeding programme. The breeding stock was made up mostly of related individuals taken at the same time from nests in Zambia, Chizarira, Chewore and Batoka Gorge and this could have had a major bearing on its long term success.

Of two clutches of eggs collected from the same pair at Songwe Gorge between 1977 and 1980, 3 of the 7 eggs blown (42%) were infertile. The male chick collected in 1983 came from this nest, which also contained 1 infertile egg at the time. Overall, twenty percent of all known eggs laid in the Batoka Gorge were infertile. Three of the four nests in the gorge where chicks were collected from contained at least one infertile egg. Infertile eggs were also recorded in Chizarira (1 out of c/3, the two chicks were collected) and Chewore (2 out of c/3, the only chick was collected) showing that infertility is more widespread than previously thought. This suggests a pre-existing fertility issue in the individuals that were being added to the captive population and that the large distances between nests are no guarantee that the birds are not closely related.

Sixty-three percent of eggs laid by Taita Falcons in the Zimbabwean breeding program were infertile. This is more than the number of infertile eggs found in wild nests and raises the possibility of inbreeding depression in the captive population. This is not surprising given the relatedness of the birds

concerned and raises questions about the genetic suitability of any chicks that could have been targeted for possible release.

The situation with the Taita Falcon shows some interesting parallels with the Fijian Peregrine *F. p. nesiotes*. There was no genetic polymorphism in that population in spite of their samples coming from different localities within the Fijian archipelago (Talbot *et al.* 2011). They confirmed the previous finding of high genetic similarity at five nests on four different islands (White *et al*. 1988, 1993). There had been signs of reproductive failure that were consistent with inbreeding depression where fertility changed over time from 88% hatching success between 1989-1998 to 10% between 2000-2002, with no indication that pesticides were involved (White in Talbot *et al.* 2011). Data from the observed reduction in egg fertility in captive Fijian birds suggested that inbreeding depression had occurred at the population level within the past several decades, implying that their population had breached a genetic threshold from viability to non-viability. It is possible that an increase in environmental stressors may have exacerbated or revealed inbreeding depression in these falcons (Talbot *et al.* 2011). This was reflected by the loss of adults from nest sites at which they were not replaced. Fijian Peregrines therefore met the criteria for inbreeding depression in a classic test to detect it (Hedrick & Kalinowski 2000). Is it possible that an environmental stress, such as the sudden reduction of prey, combined with the possible impact of inbreeding depression, was involved in the decline of Taita Falcons in the Batoka Gorge?

Clinical avi-adenovirus infection, rare in raptors, has been reported in a few species and was established as the cause of death in seven captive Taita Falcons in the same breeding season (Dean *et al*. 2006). In this case, it was speculated that Peregrine Falcons may have been carriers which shed the adenovirus during the breeding season. Does the suspected inbreeding depression of Taita Falcons make them more vulnerable to these sorts of events and has the recent increase in large falcons in their habitats increased their chances of being exposed to pathogens like this with a corresponding sudden decrease in their numbers?

Appraisal of the captive breeding programme

At least one pair was present in the vicinity of Victoria Falls for 40 years or more and had been observed by any number of birdwatchers, without any obvious impacts. Other pairs at Chizarira (Woodall 1971; B. Thomson pers. comm. to KB) were known for at least 20 years and perhaps longer, prior to the ZFC survey. The main rationale for the captive breeding programme was to provide an insurance against extinction of Taita Falcons due to the proposed building of the Batoka Gorge Dam and which would allow the re-introduction of birds, should this happen. Captive bred males were quickly supplied to the ZFC breeding programme when needed, but there seems to be no enthusiasm for the reintroduction of captive bred birds back into the wild to bolster an apparently extirpated population. When it was determined that the Taita Falcon was not suitable for falconry, despite its tremendous ability in the air, the next best thing was to create hybrids with other species to try and harness this, indirectly. These curiosities could not be re-introduced into the original habitat, which was the initial objective of this programme.

Taita Falcons have not been seen in the Batoka Gorge, once a stronghold of the species, for nearly 25 years (Dowsett 2009, Jenkins *et al.* 2019). Their decline to extinction was known in 2000 and 2001 when no active nest sites and very few birds were recorded in the Batoka Gorge by the ZFC observers. We wonder why this situation, which seems to have prevailed for nearly 25 years, was not signalled earlier, particularly as the loss of the first pair was reported by Hartley & Mundy (1990).

It is unclear why the release of captive bred falcons, which was supposedly the reason for starting the captive breeding programme, was not begun soon after this became known. The veil of secrecy about the information of known pairs resulted in this information being withheld and this was only mentioned by Dowsett (2009) and confirmed by Jenkins et al. (2019). The overall objective, to release captive bred Taita Falcons into the wild if there was a population decline, was not achieved. We doubt that this would ever have been done successfully because of the restriction of the project to known breeding areas and the corresponding lack of sustained population data collected from pairs which had not been interfered with. One of the most important questions was 'Where is the best place to release these captive bred falcons?' This question cannot be answered because there were no biological data that could have been consulted. Introducing captive bred birds into habitats from which adults had disappeared without any explanation would have been ill advised.

Deacon (2009) does not believe that the removal of Taita Falcons from the wild for incorporation into a captive breeding programme can be justified. This concurs with the appraisal made by KH more than 40 years ago when the original application to remove chicks was made to the then Zimbabwe Department of National Parks and Wildlife Management. If more effort had been spent in finding additional pairs in new areas and improving our understanding of their basic biology in the wild, it might have led to a much better understanding of their population biology and might have identified the possible reason for the decline of the pairs in the Batoka Gorge. Such a study would have provided some data on the biology of the birds, which could have made it possible to appraise the actual need to breed them in captivity as part of a conservation initiative in the first place.

The ZFC survey – some of the issues

The main focus of the ZFC survey was to determine whether chicks from known nests might be available for adding to the breeding program. Part of acclimatising individuals to captivity involves training and flying them using falconry techniques prior to their introduction into a breeding facility. The myopic focus on captive breeding, under the mistaken belief that Taita Falcons needed to be saved from local extinction caused by the building of the Batoka Gorge dam (Hartley & Mundy 1990), is still on the drawing boards some 50 years later. The limited biological data available at the time suggested that the birds in the Batoka Gorge were self-sustaining.

The data collected by the ZFC survey targeted areas where pairs were known to breed. There was a veil of secrecy and information was not shared outside of a very closed circle. There were few people involved in the survey and most of them were schoolboys who were involved in the falconry clubs of two private schools. The patriarchal structure of the ZFC determined which adults were invited to take part in the survey and it ultimately involved too few individuals to make meaningful observations in a given timeframe. It is not known whether there was any participation in the survey by National Parks personnel. Locality information of the prey remains, which could eliminate geographically out-of-range possibilities was not provided, presumably because this would divulge the location of nests. An offer to collect breeding data from pairs in the Batoka Gorge, other than T1, was made when KH lived in Victoria Falls.

Funding had been secured for the limited travel involved and would have cost the ZFC nothing and the offer was made in an attempt to make a positive contribution to the project by visiting nest sites more regularly.

The distance involved was less than 200 km and visits to nest sites could have been done in a weekend. These data would have provided temporal breeding data of pairs in the year concerned, but there was no reply to this offer.

It was later stated that there was a concern that tourists would be taken to these sites, which would compromise breeding success. In hindsight, it seems that this could also have potentially leaked the information about the lack of breeding activity in the gorge to the wider ornithological community, which would have been undesirable and have unexpected negative outcomes. Taking schoolboys on these surveys did not seem to be considered as a security risk, and some of them were willing to provide details of the nest sites to KH subsequently. Control of the project direction within an exclusive falconry agenda, with a perceived position of unique "ownership" of the falcons by the ZFC, hindered a broader biological perspective and restricted the available expertise to the those with falconry experience, and limited wider participation in the survey in the long term.

The method of data collection by the South African Taita Falcon Project was diametrically opposed to that operated by the ZFC survey, as outlined on https://www.youtube.com/watch?v=9xY6YJZdqRo. It was substantially more inclusive, with a sound biological basis and a design which included a wide range of people and their differing expertise. There was an element of trust, which was absent from the ZFC survey for some reason, and all contributions to the exercise seem to be valued. The same strategy was adopted by Jenkins *et al*. (2019) when they surveyed Batoka Gorge in the mid-2010s. The results of this survey are the most complete set of data for Batoka Gorge available. The co-ordinators of these surveys are biologists with a different agenda and they involved any number of people over the same weekend to cover as much of the area of interest as possible. This meant that their data were collected at the same time over a large area by interested people with a vested interest in doing it well. We know of no similar data from the ZFC survey, which with similar transparency, could have been done in a similar way with greater effectiveness.

The protection of nest sites from egg collectors seems a plausible reason for the secrecy by the ZFC as an egg collector provided details of the nest at Serenje from which the chicks were ultimately collected and taken to America. The American observers, both of whom had extensive experience with falcons, could not find the nest and did not believe that it would be on such a small feature. They only removed the chicks after being shown the exact locality by the collector.

Nest localities were provided to known Zimbabwean egg collectors in 2006 by the ZFC, presumably in an attempt to find any breeding pairs, but this failed to deliver any confirmed breeding records. At Chizarira, only single adults were seen and no sign of breeding behaviour was recorded during extended observation periods. The Chewore nest site had been taken over by Peregrines and there were no Taita Falcons present at any of the known breeding sites in the Batoka Gorge. It is unfortunate that the ZFC only appeared to recognise the need to include observers with skill sets that did not centre around falconry in the survey when it was too late and is a tacit acknowledgment of the shortfall in the method of the survey.

Publications derived from the project, aside from taking an inordinate time to get into print (e.g. Weaver *et al*. 2002) briefly reported on the surveys from 20 years earlier while others (e.g. Hartley *et al*. 1993) provide details of breeding biology and prey based on remains from below the nest cliffs but added nothing to our knowledge of Taita Falcon population dynamics. The breeding record from the eastern highlands of Zimbabwe (Hartley *et al*. 1993) cannot be verified and the information about the very low nest cliff used in Chirisa refers to a different locality not used by the Taita Falcons (KH, pers. obs.). Hartley *et al*. (1993) reported a productivity of 0.88 fledglings per breeding attempt for Taita Falcons in their study and commented that this was low when compared with Peregrines (1.63 chicks/breeding attempt) recorded at the same time from the same area. It is inexplicable that there was no consideration of the effect of removal of Taita Falcon chicks from these pairs on this population, given these productivity figures. It is possible that publishing data indicating a decline in Taita Falcons in the Batoka Gorge would have raised a red flag, causing an unwanted focus on the captive breeding programme and the rationale for removing chicks for this.

The untested assumption that the ecology of Peregrine and Taita Falcons was similar played a large part in the management decisions of the project. Alarm bells should have sounded when it was determined that the regular double clutching of Peregrines in captivity did not occur in Taita Falcons in captivity. When it was determined that Taita Falcons take longer to reach sexual maturity (5-6 years) than Peregrines (3-4 years) the implications of this on their population dynamics, and the removal of Taita chicks on recruitment, should have resulted in a re-evaluation of the chick removal protocols.

Leaving one chick in a nest from which others had been collected seemed to work for Peregrines but not for Taita Falcons. Recruitment into the adult Taita population probably needs a minimum of two chicks fledging per year, as shown by the model, and the few wild nests where large chicks have been recorded mostly had two or more chicks (Dowsett 1983; KH, pers. obs.; Brink 2022). The assumption that chicks from widely dispersed localities were a "new" blood line was speculative and the regular presence of infertile eggs in the wild nests suggested otherwise.

Irwin (1981) estimated there were 50-60 breeding pairs in Zimbabwe and Hartley (2000) reported 20 confirmed nest sites. Unfortunately, many of these nest sites do not stand up to close scrutiny. It is unclear whether all localities in the Batoka Gorge were visited in the same year and the possibility that some of the new sites found there were of birds relocating from further upstream, or breeding every alternative year, cannot be ruled out. Sightings of Taita Falcons at a cliff have been recorded as a breeding locality and given a nest number but with no evidence that breeding had ever taken place there. Many 'legitimate' reports from falconers could not be confirmed by independent ground-truthing suggesting possible identification errors, which undermines confidence in the reliability of the data they collected. All of the breeding areas (Batoka Gorge, Chizarira and Chewore) were known before the ZFC survey started. Chicks were not removed from elsewhere simply because no new nest sites were found by the ZFC survey and it is unknown if this was ever on their agenda. No additional breeding sites were found at the localities provided by the ZFC to egg collectors in 2006 (D. Parkes pers. comm. to KB). This further reinforces our opinion that the focus of the survey had little to do with the conservation of Taita Falcons in the wild and more to do with getting them into the hands of falconers.

In 2000, all known Taita Falcon sites in the Batoka Gorge were vacant and the 2006 search by the egg collectors showed that the Chewore site was being used by Peregrines and no breeding was seen in Chizarira or the Batoka Gorge. If the captive breeding programme was to provide an insurance against this eventuality, then surely this was the time to put the reintroduction phase into action? Available data from known historically occupied habitat showed it was now devoid of Taita Falcons. This was apparently not known by the Peregrine Fund as surplus birds were being given to falconers and Bill Heinreich (2015, https://youtu.be/WI4fVTFr39g) indicated that reintroduction of captive produced birds was still the intention of the American breeding programme. Twenty-one chicks were produced by one American breeder between 2002-2004 (Dean *et al*. 2006), but their possible re-introduction into habitats now devoid of Taita Falcons was not carried out, at least to our knowledge. Was there a possible potential breakdown of communications between the Peregrine Fund and the ZFC or was it as a result of incomplete data collection, recording and limited analyses that did not highlight what was going on?

There were no reliable data on pairs that were not breeding or had failed in their breeding attempt, and the lack of breeding success data from all known pairs supports this (Table 1 in Jenkins *et al*. 2019). Data from T1, which reared chicks from 1992-1995 (KH, pers. obs.) were excluded from Jenkins *et al*. (2019), perhaps because this nest site was not visited by the ZFC survey team, thus illustrating the shortfalls of the ZFC dataset and that accurate nest monitoring may not have been a priority. We have found no data to contradict our interpretation that nests were only visited to determine if there was a chick that could be harvested for the captive breeding programme.

The collection of basic population data should have been a priority, before any chicks were removed for captive breeding as this would have determined whether or not Taita Falcons were threatened with local extinction. Given the rugged nature of their habitat and the unknown number of potential nest sites across the country (Irwin 1981), was the impact of the proposed Batoka Gorge dam on the whole population exaggerated? The dam might have flooded some falcon habitat and caused losses of the existing pairs but these birds disappeared (Jenkins *et al*. 2019) long before construction of the dam (which has not yet begun). The actions that were supposed to mitigate the impact of a future dam on the falcons might have had the same effect as the dam itself.

Competing species

The Taita Falcon pair at T1 survived and bred in the gorge between pairs of Peregrines on either side of them. During this time, their nest site location moved up and down the gorge on both sides of the river in sympathy with the sites used by the neighbouring Peregrines. No interactions were seen between them and the Peregrines during the times spent observing Taita Falcons. Direct competition with Peregrines is not always a given and both species have bred successfully when only 300 m apart on a large cliff (Hartley *et al*. 1993) but the locality of this site is unknown. Most interactions occurred within 200 m of the nest and intruders were only chased when they were probably viewed as a threat to chicks in the nest. Raptors flying high over the nest site were ignored and most interactions were at or below the top of the cliff. Taita Falcons avoided contact with Peregrines by deliberately avoiding the vicinity of an active Peregrine nest (Hartley *et al*. 1993). They ignored Verreaux's Eagles *Aquila verreauxi* and occasionally soared with them without any interaction, even when chicks were present in the nest.

The Taita Falcons spent large parts of the day on a favourite perch on the cliff face and most activity was in the early morning and in the hour or so before sunset, as has been recorded by Möller (1989). Peregrines on the other hand, were much more active during the day and regularly interacted with Pied Crows *Corvus albus* and Verreaux's and African Crowned *Stephanoaetus coronatus* Eagles flying in the vicinity of the gorge. During a week in August 1996, there was much calling and displaying by a single Taita Falcon on the T1 cliff. The following week a Peregrine was seen flying along the cliff in the afternoon and the Taita Falcons were not seen there again. It is uncertain if interactions with Peregrines caused the desertion of this nest site by the Taita Falcons but as soon as they seemed to have deserted it, the Peregrine was regularly seen along the T1 nest cliff.

More recently, Lanner Falcons *Falco biarmicus* have been found breeding in the Batoka Gorge with at least three pairs colonizing the gorge between the late 1990s and mid-2010s (Jenkins *et al*. 2019). During the observations in the early 1990s no Lanners were seen in the gorge at all. An adult Lanner was seen at the old Songwe Gorge Taita Falcon site (Figure 4) in December 2018.

Peregrines took over Taita Falcon nest sites in the Batoka Gorge, Chizarira and Chewore in 2006 but it is not certain whether these sites had been deserted by the Taita Falcons before occupation, or there was active conflict over them. Lanners were observed displacing the Taita Falcons at the nest site at Serenje in Zambia but they only appeared after the massive habitat destruction that occurred in the immediate vicinity. There are no published data from inselberg habitats and some of these features are so large in Zimbabwe, that on two occasions Peregrines nested on one side and Lanners on the other. On another, Peregrines nested on one end of the inselberg and Lanners on the other. At Serenje the three different falcons occupied separate inselbergs, all of which were in sight of one another. The Peregrine on the biggest face, the Lanner on a smaller one and the Taita on the smallest.

Möller (1989) found 19 pairs of Peregrine, 5 pairs of Lanner and 4 pairs of Taita Falcons and maintained that food competition between them was insignificant and that suitable nest sites were the limiting factor. Most of the interactions between falcon species have been recorded in linear gorge habitats, where nests are on the same feature, but are well out of sight of each other and there are few data on their interactions away from these habitats.

What is optimal Taita Falcon habitat?

The currently accepted view is that pairs are found on large cliffs and along escarpments, mostly flanking the middle Zambezi valley in Zimbabwe, to which it is closely tied (Irwin 1981). The most well-known locality, where Taita Falcons had been seen most frequently, was the Batoka Gorge (Figure 4) and this fits the accepted habitat as reported in the literature. Large gorges on the Zambezi escarpment in Chizarira National Park (Mucheni, Ruzuruhuru, Sengwa) are similar to Batoka Gorge in terms of the cliff sizes and general geomorphology, so these were also considered to be the 'usual' habitats for Taita Falcons. Möller (1989) reported that Peregrine Falcons preferred the humid cultivated areas and Lanner Falcons the dry pasture areas with stock farming on Mt. Elgon in Uganda, but the preferred habitat of the Taita Falcon could not be so clearly defined. Two pairs occupied locations preferred also by Peregrines, the other

two pairs occupied locations in a transitional area between nesting areas preferred by Peregrines and Lanners.

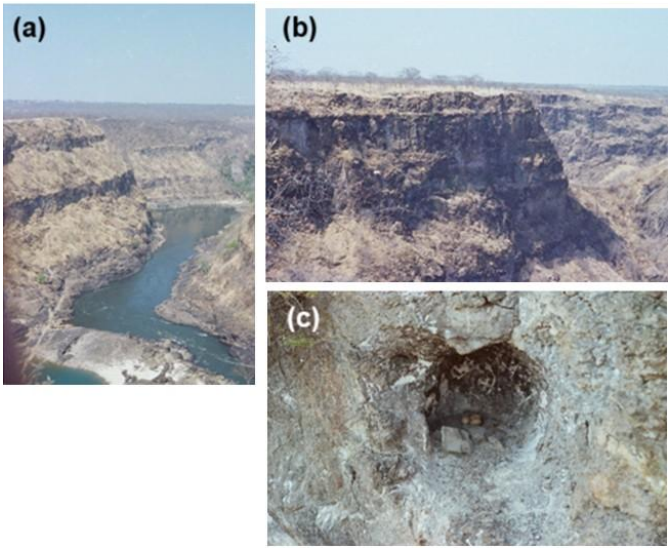

Figure 4. (a) General view of Batoka Gorge facing east from the nest; (b) a nest cliff from the Zimbabwe side of the Zambezi River, and (c) a nest pothole with a clutch of three eggs.

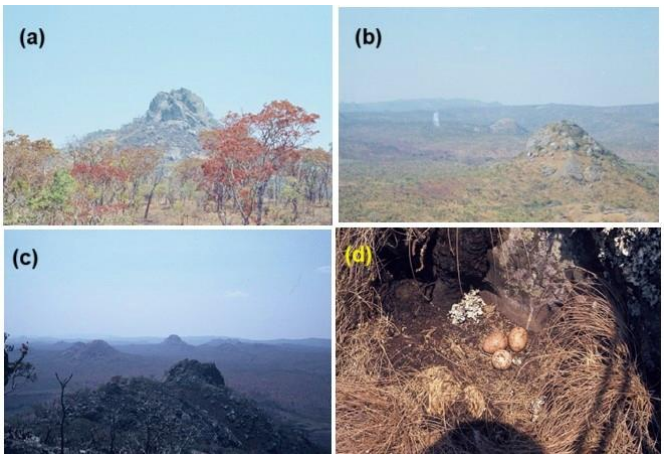

Figure 5. Taita Falcon nest site in the Serenje district in Zambia, showing (a) the inselberg on which the nest was found, (b, c) the general outlook from the nest in different directions showing the nearby granite inselbergs, and (d) the clutch of three eggs.

One of the few nesting sites away from the Batoka Gorge was in eastern Zambia, on a granite inselberg in the Serenje district (Figure 5). This is very different habitat to that occupied by Taita Falcons in the gorge habitats of Zimbabwe, although there are breeding records from small cliffs (Chirisa in the 1970s) which are on small escarpment-like ridges and not granite features. The breeding record in Chewore is on an inselberg-like feature also with a comparatively small cliff (Figure 6). The tenure of pairs on these small cliffs is unknown and the falcons might attempt to breed on these seemingly marginal localities for a few years, when conditions are suitable. The Chirisa falcons were located by chance because there was a radio tracking aerial built on the top of the cliff they were using. Regular resupply of personnel resulted in the falcons being located, otherwise they would have gone un-noticed.

There are any number of similar cliff features nearby which have never been censused for falcons, which could have Taita Falcons. The densities of falcons in some of these woodland habitats, where they use small cliffs, can be quite high. For example, the number of Peregrine Falcon pairs in the vicinity of the pair studied by Hustler (1983) was unknown at the time of the study and it has since been discovered that there were seven pairs of Peregrines, on almost every small cliff feature within a 13 km radius of this nest, averaging about 3.5 km apart (D. Adams pers. comm.).

Figure 6. The small nest cliff at Chewore.

The presence of single Taita Falcons that have been seen in unusual localities and never again, has been the subject of much discussion, campfire debate and speculation. Sightings at World's View and elsewhere along the Nyamaropa escarpment and Chimanimani in the eastern highlands suggest that some systematic searching in this area is warranted to establish the status of these falcons there. The location of the nest site in the eastern highlands was not specified by Hartley *et al*. (1993) and remains unknown. A report from Roger Nielsen of Taita Falcons feeding chicks in Umfurudzi in the early 1970s, before the escalation of the bush war was not followed up because of the security situation. There are no large cliffs in the vicinity but it is approximately 50 km from where the overlooked specimen was collected from a small escarpment adjacent to the granite inselberg habitats in the Chimanda Communal Land. The habitat here is similar to that from which pairs have been found in Mozambique and the site seems to be relatively intact, so the ZFC should have made some effort to look for them there. The isolated records of birds at Chirisa over an extended period, a bird seen perched next to the main road down the Zambezi escarpment in the Mavuradonha Wilderness Area and a young bird rescued from a hungry Tawny Eagle *Aquila rapax* close to a granite inselberg near West Nicholson (Hartley 2002e) are difficult to explain. Was the young bird on the inselberg near West Nicholson a dispersing individual from that type of habitat from further afield and if so, how far away? Are there some pairs in the relatively untouched granite inselbergs of Umfurudzi?

The recent discovery of the first population of Taita Falcons away from the linear constrained habitat of the Batoka Gorge, adds another dimension to this discussion and unveils some of

the secrets of this bird. In N Mozambique, Taita Falcons occur in a miombo woodland dominated landscape dotted with granite inselbergs and they nest on suitable cliffs overlooking woodland, from which they hunt small birds. This habitat type is prominent across the region, extending north into Tanzania and further south in Mozambique (Brink 2022) and west into Malawi and Zambia and then south and south west into the large granite shield area of Zimbabwe. Locations with granite inselbergs are scattered across this distribution and so are the records of falcons. Brink (2022) speculates that the inselberg-strewn miombo woodland of N Mozambique is typical Taita Falcon habitat. If this is correct, then the occurrence of these falcons in gorge-like habitats is the exception rather than the rule and warrants some consideration. Their unobtrusive nature when nesting and the fact that cliff height is not necessarily important means that searches restricted to the bigger inselbergs will produce Peregrines in particular and Lanners if there is significant woodland deforestation. Taita Falcons are more likely to occur on the inselbergs when the woodland habitat around them is in good shape.

Discussion

It is useful to summarise some of the biological information on Taita Falcons which is scattered across a variety of publications, some of which are difficult to access. They are found on large cliffs (>100 m high), as accepted in most texts because this is where most observations of Taita Falcons have been made so far. They are rare and limited to these habitats closer to the tropic of Capricorn and further north, where they compete with the larger Peregrine and Lanner (when the adjacent habitat has been degraded) for space, and they breed in marginal westerly facing nest sites (Hartley *et al*. 1993).

They eat small birds, mostly <50 g in weight, and occasionally insects. Prey is caught on the wing after a stoop from altitude or opportunistically along the cliff face and sometimes cached on the cliff for later consumption. They apparently have a small home range (Hunter *et al*. 1979), which might constrain their food provisioning capacity when compared with adjacent Peregrines in the same habitat, as there may be a prey overlap between the two species. However, Möller (1989) dismissed the assertion that the two species compete for food and recorded a territory of 3-4 km^2 on Mt Elgon in Uganda. Prey provided to the incubating female by the male was not plucked, but as soon as the chicks hatched it was plucked. Chicks were fed by the female for the first 18 days of life and fledged about 6 weeks after hatching. The prey was determined according to availability and season and changed from swallows and martins, when they left Uganda, to weavers and similarly-sized birds. This is a major shift in prey and warrants a change in hunting strategies. There is a misconception that they are similar to Peregrines. In captivity they do not double clutch, take a year or more longer to reach sexual maturity and need a minimum of two young fledged per breeding attempt to maintain the population over time.

The recent discovery of a contiguous population of Taita Falcons in the Niassa province of Mozambique (Brink 2022) warrants a re-think about our understanding of them. Most pairs have been found on large cliffs (>100 m high) like the Batoka Gorge, Chizarira, Mt. Rudd, and World's View (Nyanga) in Zimbabwe, which have been recorded as their main habitat and reported as such in the major texts. These are also the places where much effort has been expended in looking for them and where they are correspondingly difficult to find. Breeding records on smaller "atypical' features (Serenje, Chewore, Umfurudzi?) were difficult to explain in this context.

Were they much more widespread in the past when those individuals on small cliffs were not unusual? Are we in an ecological situation which is much more disadvantageous for Taita Falcons now than it was in the past? The granite shield centred along the central/east portion of the Zimbabwean watershed runs in a north-easterly direction and the granite inselbergs with their associated miombo woodlands are a feature of the landscape across this part of the country. This habitat seems to be very similar to that in the Niassa province of Mozambique where a population of Taita Falcons has recently been discovered, and puts some of the unexpected records of Taita Falcons in Zimbabwe into perspective. This perspective is further enhanced by the records of Taita Falcons on granite inselbergs in Malawi (Hunter *et al*. 1979, William Stephens, iNaturalist.org).

It is worth re-visiting the hypothesis proposed by Möller (1989) for the rarity of the Taita Falcon. He states that the gorges, valleys and spurs of the higher mountains were originally covered with forest, only small remnants of which still exist. The majority of the birds that live in the forest hardly ever fly over the canopy, except for swallows, swifts and martins. In such an environment, food for Peregrine and Lanner Falcons is rare and swallows and swifts supported the evolution of the Taita Falcon. Today most of these mountain forests have disappeared with the deforested areas being used as pasture and farmland. These support different bird species that are prey for Peregrines. Competition for nests sites results in the smaller Taita being out competed. As the habitat destruction has continued, it has favoured the much more generalist Lanner Falcon, which has resulted in the Peregrine also being replaced. Overall, is it the decrease in food abundance, the changing environment and increasing competition with Peregrine and Lanner Falcons for nesting sites which may be reasons for the rarity of the Taita Falcon.

Using this idea as a baseline, it presupposes that Taita Falcons were much more widespread in the past. It is possible that these falcons occupied inselberg habitats in well-developed closed canopy miombo/deciduous woodland and often on small cliff features with their associated deciduous woodland (Figure 7). They occasionally occupied large cliffs associated with river gorges, even on the edge of their distribution.

In Zimbabwe, most of this granite habitat is now significantly degraded and deforested (Figure 8) and this has impacted the small birds which form the basis of their prey. Further agriculture and the demand for land opened up and completely destroyed the woodland and changed the prey base for those pairs on these small cliffs and inselbergs and they disappeared. Were the previously known Taita Falcons in Zimbabwe that occupied large cliffs in the northwest of the country remnants of a much more widespread population from the past which had managed to survive until now? As the habitat changed these pairs became increasingly isolated geographically and has this affected the recruitment of birds into the habitats at the edge of their geographical range?

Figure 7. General views of the habitat occupied by Taita Falcons in Niassa, Mozambique, for comparison with the habitat around the Taita Falcon nest in Serenje, Zambia (Figure 5) and the degraded granite landscape in Zimbabwe (Figure 8). Screen captures from Brink (2022, https://www.youtube.com/watch?v=85Cm4xJz-Rs)

Recruitment in Batoka Gorge has been effectively zero for an extended period of at least the last 20 years. The birds that bred in Chirisa and the occasional sightings at small cliffs at Chewonde, also in Chirisa, and below the escarpment at Chizarira, are remnants of the birds that moved through the area before the woodland destruction. Taita Falcons on some of the large cliffs associated with river gorges on the extreme west of their distribution managed to survive, until (1) a change in prey availability, or (2) less recruitment and the presence of another large competitor in the form of Lanner Falcons, caused them to disappear.

Brink (2022) speculated that birds from the newly located population in Niassa could contribute to the recruitment of new birds into the Batoka Gorge. Given that there has been no recruitment into Batoka Gorge for the last 20 years while the Niassa birds (and those from elsewhere) have been breeding undetected, this seems unlikely. The extent of deforestation between Niassa and the Batoka Gorge and its impact on small prey, which seem to be essential for the survival of Taita Falcons, would prevent any movement of birds between these two localities.

Most of the area where Taita Falcons occur in Zimbabwe was under the control of the Department of National Parks and Wildlife Management, so how were the woodlands destroyed? The short answer is, by a combination of hot fires between August and October, which destroyed any regrowth of miombo species and the impact of an increasing elephant population, which destroyed large portions of the miombo woodland. In this context, the reduction of elephants from 15,000 to 4,500 in the last two decades at Niassa due to poaching (Brink 2022) is a potentially positive development for the conservation of Taita Falcons. It creates a conundrum for managers of a hunting area, where elephants are a key species for hunting safaris, but keeping their population well below carrying capacity (whatever that is) is a management option that should be considered in areas that currently contain populations of breeding Taita Falcons.

It seems that Taita Falcons can co-exist with the larger falcons on large cliffs, probably due to niche partitioning in terms of prey and availability of nest sites, but when there is an issue with the prey (as it seems there was at the end of 1995 in the vicinity of Batoka Gorge for Taita Falcons), this fails. The smaller Taita Falcons, which feed on smaller bird species than Peregrines do, move out.

There would have been some recruitment into the Batoka Gorge population between 1957 and 1981 but there are no details of when this might have taken place. There are no confirmed sightings of single birds in the gorge that we know of, other than the single bird soliciting in August 1996, and there has been no recruitment of Taita Falcons into the Batoka Gorge over the last 25 years, suggesting that the unfavourable conditions there for these birds have persisted since before 2000 when there were no falcons seen there. The intense soliciting behaviour observed by a solitary adult Taita Falcon over a week at T1 in August 1996, suggests that there were no unattached birds in the vicinity at that time and this territory was vacated shortly afterwards.

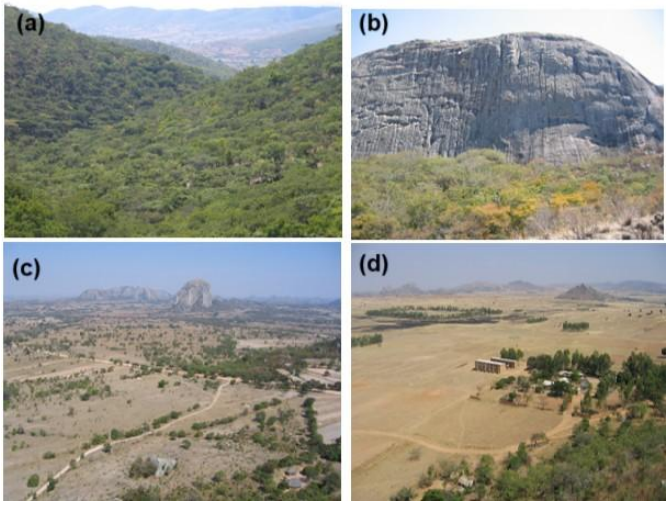

Figure 8. (a) Pristine miombo woodland on a granite inselberg in Zimbabwe; (b) a typical inselberg in mixed miombo woodland; (c) and (d) almost completely cleared woodland, illustrating the extent of habitat loss around falcon nest sites in Zimbabwe.

What happened? We can never be certain but the reduction of small prey in 1996 and later, probably played a part in the extinction of Taita Falcons in the Batoka Gorge. The increase in number of larger falcon species in the gorge with time and the potential difficulty of single adult birds maintaining a territory in these circumstances, could be additional considerations. This suggests a dynamic situation and concurs with the perspective of Jenkins *et al*. (2019) who suggested that the change in importance of the Batoka Gorge for the Taita Falcon may be a temporary outcome to periodic changes in the prey base, and/or status of competing species. We now believe that the occupancy of the Batoka Gorge at the edge of their distributions was always temporary. There was obviously some recruitment into this area in the past, whether from birds reared in the gorge or from elsewhere, but this has ceased and the conditions up to at least 2000 that caused the disappearance of birds from the gorge have persisted for 25 years or more. It seems that prey availability might be one of this issues and as long as there is an issue with the availability of small prey this situation will prevail and any Taita Falcons in the gorge will be transient at best. It is possible that there will be enough dispersing Taita Falcons from nests elsewhere, which could re-colonise the gorges should conditions

permit, but given the increasing woodland destruction in the intermediate area, this is less and less likely.

It seems that destruction of woodland and alteration of the landscape influenced the occurrence of falcons in Zimbabwe and perhaps central Africa in general. Is there a "sliding scale" of woodland destruction which determines the occurrence of falcons? This is determined by the "ability" of these falcons to cope with this damage and the higher the nest cliff, the "easier" this is, until some threshold for another factor (prey?) is reached, which causes the falcons to leave. We propose the sliding scale goes from Taita – Peregrine – Lanner and this represents little – minor – major woodland destruction. Currently in Zimbabwe, Peregrines are being displaced by Lanners at traditional Peregrine breeding sites and the Taita Falcon has been long gone from most inselberg habitats and its current distribution is shrinking.

It would be instructive to find and monitor breeding pairs of Taita Falcons in the east of the country. They are closest to the birds which seem to be at the current core of the distribution further to the east and they might be the first indications of a problem with recruitment, which might already be happening. Information of the recruitment of birds into the breeding population is a priority and with the increase in tracking technology, satellite trackers placed on fledgling Taita Falcons from nests in Niassa would be a most fruitful avenue of investigation. Understanding the fitness consequences of possible inbreeding, as suggested by the number of infertile eggs in nests of wild Taita Falcon pairs and the captive breeding population, is of importance to evolutionary and conservation biology. The magnitude of inbreeding depression in both adult and juvenile survival of a small isolated population of finches was strongly modified by two environmental conditions, food availability and number of competitors (Keller *et. al*. 2002); two ecological factors considered to be limiting factors for Taita Falcons. The combination of relatively severe inbreeding depression in survival and reduced recruitment probability resulted in few inbred finches breeding (Keller *et. al*. 2002). Is this perhaps an explanation for only half the known pairs of Taita Falcons breeding annually? This is an avenue of Taita Falcon biology that warrants investigation and it might have been a contributing factor to the decline of the Taita Falcon in the Batoka Gorge.

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The breeding biology and relationships between two African grey kestrels

Kit Hustler, Rob Jeffery & Kevin Barry

Introduction

There are a number of interesting and poorly known raptors in tropical Africa and two of them, Dickinson's *Falco dickinsoni* and Grey *Falco ardosiaceus* Kestrels, are the subject of this paper. Both species are poorly known, probably because of their distribution and a lack of observers, while more dashing and conspicuous species have attracted more attention. This paper documents breeding records for both species, mostly obtained from central Africa, and specifically from Grey Kestrels in the northern parts of Namibia, close to the Angola border. The distribution and relationships between palm trees (of various species) and the altitudinal range of these two species is also investigated. Both species utilise Hamerkop *Scopus umbretta* nests and most breeding records of Grey Kestrel in East Africa are from these nests. The distribution of Hamerkops and the most commonly used palm trees (*Hyphaene* and *Borassus*) were therefore compared with that of the kestrels in an attempt to gain some understanding of the use of either for breeding by both species.

Methods

Identification and distribution

These kestrels are fairly easy to identify in the field because, over most of their ranges, they are the only grey-coloured kestrels likely to be encountered. This is not the case where they potentially overlap and for some reason there is much confusion between these species. They have both been confused with other small grey raptors like the Gabar Goshawk *Micronisus gabar* and Sooty Falcon *Falco concolor* (Benson *et al*. 1971; Brown *et al*. 1982, Dowsett & Dowsett 2006, Dowsett *et al*. 2008).

Recent citizen science bird mapping projects (e.g. www:ebird.org) have revealed that other species such as the Lizard Buzzard *Kaupifalco monogrammicus* (eBird checklist S66566928) and, inexplicably, the African Harrier-hawk *Polyboroides typus* (eBird checklist S147291542) and Peregrine Falcon *Falco peregrinus* (eBird checklist S154742961) can be added to this list. Recent records from Tanzania, where both species overlap, provided by tourist birdwatchers, but not backed up by photographs, are considered unreliable (Neil Baker pers. comm. to KH) despite being verified by the checkers of records submitted to this initiative. Close analysis of some of the photographs (as identified above), suggests that the scepticism of local ornithologists is justified. Angola is another area of potential overlap of these kestrels and the limited data from there suggests the same problem – one of the few records of Dickinson's Kestrels from Angola on eBird (S185624331) is in fact a Grey Kestrel.

We used data from www:inaturalist.org, www:ebird.org and bird atlases, including the unpublished Tanzania data, to show current distribution of these kestrels. Distributions which suggested a 'core' area were plotted in dark colours on the maps. Regions in between these, which had isolated records, were plotted in lighter colours. The distribution of the various palm trees and Hamerkops recorded on the same databases has been used to illustrate our discussion of the two kestrels and to create some consistency of method.

Breeding

Nesting kestrels were largely inconspicuous. Non-incubating birds often perched in the lower palm fronds of nearby palms and were difficult to see, while incubating birds were completely hidden in the palm stump or Hamerkop nest. Hitting the stump with a heavy object often flushed the incubating bird and also resulted in the non-incubating bird flying from its perch. If no birds flushed from the stump, it was assumed that there was no nest and we moved onto the next possible stump.

Nests were checked using a long aluminium ladder, leaned up against the stump and held in place by ropes. Inspection was a risky process when the stump involved was very tall and flimsy or rotten. Nests which did not have incubating birds, but most probably contained young, were not checked but were revealed through the appearance of anxious adults and sometimes by the presence of numerous flies in and around the top of a stump – no doubt attracted by prey remains and droppings of the young birds. Palm stumps like this were not examined closely. Most searches centred around palm stumps but nearby Hamerkop nests were also examined for breeding kestrels.

The palm trees

When *Hyphaene* palms die, the crown and fronds drop off, leaving a free-standing trunk open to the elements. Although the outer bark of the palm is hard and tough it is relatively thin with a thick core of softer heart wood. Within a few years of exposure to the sun, rain and insects, this core starts to rot and shrink, forming a cavity in the top, which the kestrels use for nesting. Over the years the central core becomes more and more rotten and the cavities increase in size. Sometimes patches of the outer bark break away providing side access to suitable nesting locations. These holes in the outer bark are sometimes used to gain access to suitable nesting locations, particularly when the top cavity gets too deep, making ingress/egress difficult. There is no evidence that the kestrels are able to break through the outer bark to create an opening to a suitable site. The nesting cavities are not added to in any way but debris from past nesting attempts starts to build up in the form of soft chips of rotting palm wood that cover the floor of nesting chambers. Other debris comprises pellets, bones, beetle casings, and so on. Eggs are laid in a shallow scrape made by the birds in this debris.

The impact of man on the availability of suitable nest sites in palm trees needs some consideration. Natural mortality, where the top of the palm drops off and the remains of the stem rots, would have been the usual way for nest sites to become available and this takes some time and depends on the age of the palm tree. However, the making of palm wine, although illegal, involves cutting off the crown of a mature male palm and collecting the sap to make wine. This kills the palm, and the fronds drop off, creating a suitable free- standing stump which, over time, rots at the top creating a cavity suitable for the kestrels to nest in. The increase in the number of these stumps is likely to result in many more suitable nesting sites in subsequent years. On the other hand, the availability of chainsaws has resulted in many stumps being cut down and used for fence posts and this has reduced the number of potential nesting sites. It is uncertain whether this has resulted in an increase in the use of Hamerkop nests in these areas. *Hyphaene* and *Borassus* palms, which

could be suitable breeding sites for both kestrels, are widely but patchily distributed across tropical Africa, with the largest areas being in West and East Africa (Figure 1).

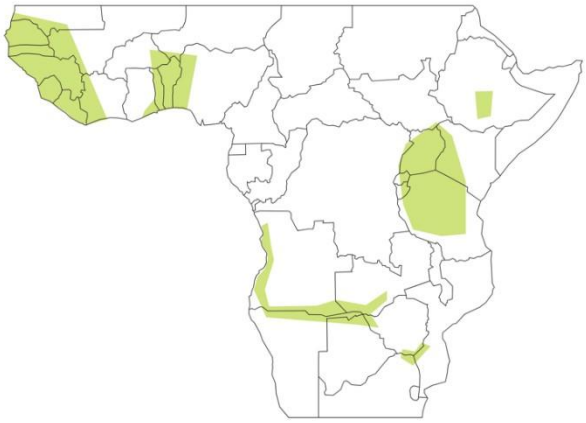

Figure 1. Distribution of *Hyphaene* and *Borassus* palms across the continent (re-drawn from www:inaturalist.org).

Results

Dickinson's Kestrel

Breeding. Most breeding sites were in close proximity to habitation in the form of huts and villages and a high human population density. They were characterised by open sandy areas and cleared communal agricultural areas with palm trees and nearby water sources. Most nests were found in palms (*Hyphaene* only in Zimbabwe and including *Borassus* sp. in Zambia where the top has died and fallen off (Figure 2a and b) leaving a hollow at the top. Access was from the top of the stem or through a hole on the side, which allows access to the cavity (Fig 2c and d). It is not certain that the kestrels made a hole in the side of the stem in these instances. The average height above the ground was 10.8 m (range 8-17.9 m, n = 13), with the mean height in *Hyphaene* palms of 11.5 m (range 7.5-17.9 m, n = 10). Nest sites in all other tree species were over 12 m above the ground. The average altitude of six nests sites was 944 m above sea level, (range 489 – 1300 m).

Eggs were laid in August (n = 4), September (n = 22), October (n = 10), November (n = 1) and December (n = 1) with recorded clutch sizes of 2 (n = 4), 3 (n = 13) and 4 (n = 2), measuring on average 39.7 x 31.5 mm (45.0-36.3 x 33.6-29.6, n = 48) and weighing on average, 21.3 g (25.1-17.1, n = 2 9). Eggs in collected in 11 clutches of 3 decreased in size from the largest (average 41.1 x 31.0 mm); middle sized (40.1 x 30.7 mm) to smallest eggs (39.5 x3 0.7 mm). The markings and background colour of the eggs was variable. Most appeared to have a uniform background colour of pale salmon pink with a uniform fine speckling of darker pink (Figure 3) but some had a background colour of mostly white with large blotches of dark brown and red.

The cavities used for breeding were, on average, 46 cm (range = 30-90 cm) from the top of the palm tree and on average 21 cm (range 17-25 cm, n = 5) in diameter at the bottom. Palms were used for at least 3 consecutive years (n = 3), and possibly longer, and the nests were not lined by the kestrels. Eggs were laid on the bottom of the nest hole of palms being used for the first time. Those with bark chips. the remnants of the elytra of large beetles and/or pellets on the bottom of the nest, presumably regurgitated by the birds when they were incubating (Figure 3) reflect an accumulation of material through use and had probably been used more than once. This suggests that these sites were all used before but this was not confirmed by return visits to all nests. Pairs in the same proximity commenced their clutches on a synchronized basis and only the initial laying date would vary, depending on the year, within one to two weeks. We could find only two breeding records in miombo woodland, in holes in trees, created by large branches of a *Brachystegia glaucescens* and *B. longifolia* respectively, falling off and creating suitable holes and both with c/3 clutches (Edwards 1996). More nests in typical miombo habitat (between 1200-1500 m a.s.l. where palm and baobab trees are scarce or absent) were found in Hamerkop nests rather than miombo woodland tree species. There are at least three records where c/4 (n = 1) and c/3 (n = 2) clutches have been collected from Hamerkop nests, and kestrels have been recorded breeding in a Hamerkop nest at Hippo Pools, Umfurudzi (Iain Jarvis pers. comm. to KH) but details are lacking. Occasionally man-made sites have been used and a nest, which was used for at least two consecutive years with c/4 eggs, was located in an inspection hole in the Birchenough bridge over the Save River. Palm trees occur in the area but were not checked/searched for breeding kestrels.

Hamerkop nests seem to be the most suitable nesting site in areas of miombo woodland with limited or no suitable large holes in trees. While this has been previously reported, it is not, apparently, widely accepted as an important breeding site for this species. Finding suitable trees for nesting in continuous miombo is difficult and there might be an observer bias with finding breeding records in Hamerkop nests or palm trees in more open habitats.

Discussion

Most breeding records come from palm trees (*Hyphaene* in Zimbabwe and Mozambique and including *Borassus* in Zambia and Tanzania (Bennett 2017), and with only two known breeding records in *Brachystegia* tree species in mature miombo woodland. There are a few records from Baobabs *Adansonia digitata* and one from a bridge inspection hole. Hamerkop nests seem to be used preferentially in mature miombo woodland, but there may be observer bias as they are easier to find than suitable large holes in the surrounding woodland. The only nest found in the Caprivi Strip of Namibia was in a hole in an unidentifiable dead tree and there was no evidence of kestrels breeding in any of the nearby Hamerkop nests (n = 5) which were deliberately inspected for signs of breeding.

Recent visits to areas, which previously had an estimated 20-30 pairs of Dickinson's Kestrels, showed a significant reduction in the number of dead palm trees and a corresponding absence of kestrels. It seems that the increase in number of people in the area and the acquisition of powered chainsaws was the reason for this. These saws allow for easy removal of tall palm stumps and their conversion into fence posts, with a corresponding negative impact on the kestrels.

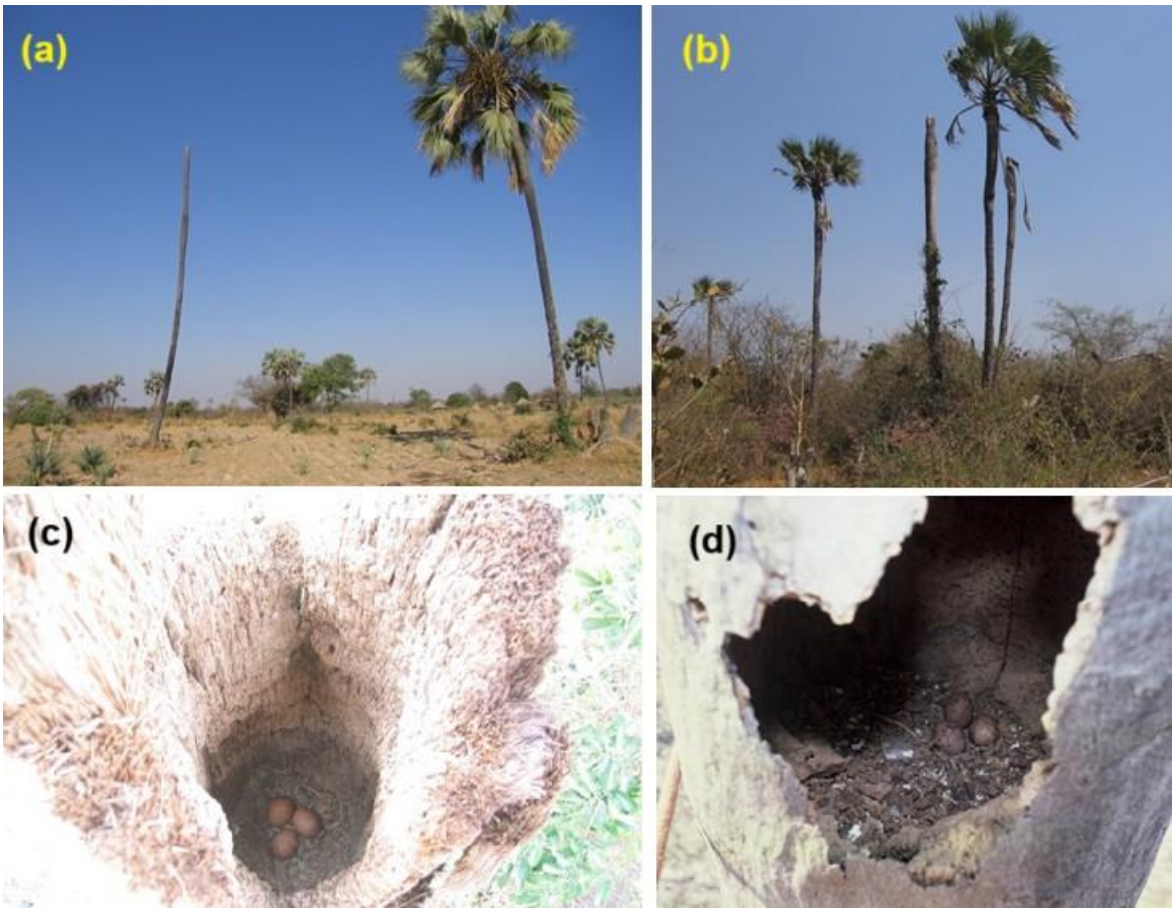

Figure 2. Typical Dickinson's Kestrel nest localities (a, b) and details of nest site showing a site where access is from the top of the palm stump (c) or from the side (d).

Figure 3. Variation in egg colour, clutch size and material accumulating in Dickinson's Kestrel nests.

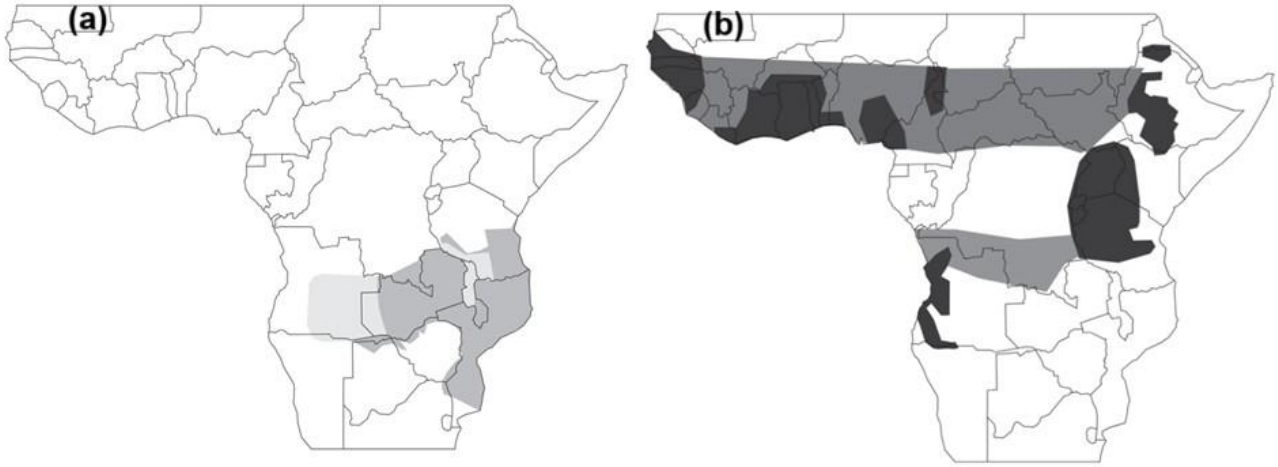

Figure 4. The distribution of (a) Dickinson's Kestrel and (b) Grey Kestrel. The darker shading indicates the species' continuous distribution, while the pale shading indicates areas from which there are occasional and irregular records.

Dickinson's Kestrel occurs mostly below 1200 m and is considered to be a miombo endemic (Figure 4a). It is an uncommon resident in woodlands in southern Angola, north through Huambo to Bié, Malanje, Lunda Norte and Lunda Sul (Dean, 1999; Pedro Vas Pinto pers. comm. to KH) and there are no recent reliable photographic records from Angola. It is absent from the DRC and its northern limits are in Tanzania with a few old records claimed from southern Kenya, and one recent record from Uganda (Hunter 2022). It is abundant on Pemba Island and when compared with its abundance on the coast north of Dar es Salaam, this suggests range contraction southwards on the mainland. In Malawi, it is a bird of low-lying, dry savannah associated with palms mainly below 1200 m altitude, and generally avoids highlands and miombo (Dowsett & Dowsett 2006). In Zambia, it is associated with palms but often in miombo or any woodland and is everywhere rather sparse and rare in the Barotse and Balovale provinces west of the Zambezi (Benson *et al*. 1971, Dowsett *et al*. 2008). There are records from along the length of Mozambique and it probably occurs in the miombo woodland and palm savannah there. In Zimbabwe it occurs most below 1200 m in miombo woodland and palm savannah. In Botswana it is localised to the palm savannah of the Okavango Delta and in South Africa it is scarce in the northern part of the Kruger National Park.

Grey Kestrel

Breeding (Uganda)

Two different pairs, both breeding in Hamerkop nests, were found in Uganda at an altitude of 1168 m a.s.l. In one pair, 3 chicks fledged from a Hamerkop nest on 7 June 2005, with a presumed laying date of the end of March (assuming an incubation period of 30 days, nestling period of 30 days and a week or so of post-fledgling). The Hamerkops built a new nest, 7.3 m up, which was also occupied by the kestrels with a c/4 clutch on 17 March 2006 (Figure 5). The eggs were in the dark towards the rear of the enclosed nesting chamber, and 2/3 of the way from the entrance to the Hamerkop nest. There was no external sign of occupation by the kestrels in the form of mutes or feathers, and the only sign of occupation was the relentless attacks by the kestrels on nearby Pied Crows *Corvus albus*. The mean weight of the eggs of this Uganda clutch was 21.7g (range 22.49 - 20.98 g) and their; mean dimensions were 40.7 x 32.6 mm (41.5-39.9 mm x 33.1-32.1 mm; n = 4); these measurements fall within those presented in Brown *et al.* (1982): mean 41.0 x 33.3 mm of eggs from W. Africa (range 40.4-43.0 x 31.6-34.0 mm).

Breeding (Namibia)

The area searched for breeding Grey Kestrels was south of/along the Namibian/Angola border as far west as Ruacana, east to Ondangwa, and south to Oshikuku. It falls in the Cuvelai/Etosha drainage area. The vegetation comprised mopane trees/shrubs, thorny thickets, *Hyphaene* palms and open grassland. It was thicker in the north, becoming sparser further south, with pans and channels and sandy/salty soils which are heavily worked as communal agricultural areas. No nests were found in suitable trees surrounded by uncleared vegetation but only in the areas of cleared fields. It seems the area is prone to flooding in the rainy season but this was not confirmed and is approximately 1110 m asl. The main breeding area is estimated to be from the Namibian/Angolan border due south to Outapi. From there SE to Oshakati and then due north to the Namibian/Angolan border from there, an estimated 2100 km^2 of suitable habitat.

Figure 5. (a) The general location of the Grey Kestrel nest in Uganda; (b) the location of the Hamerkop nest in a tree; (c) close-up of the Hamerkop nest.

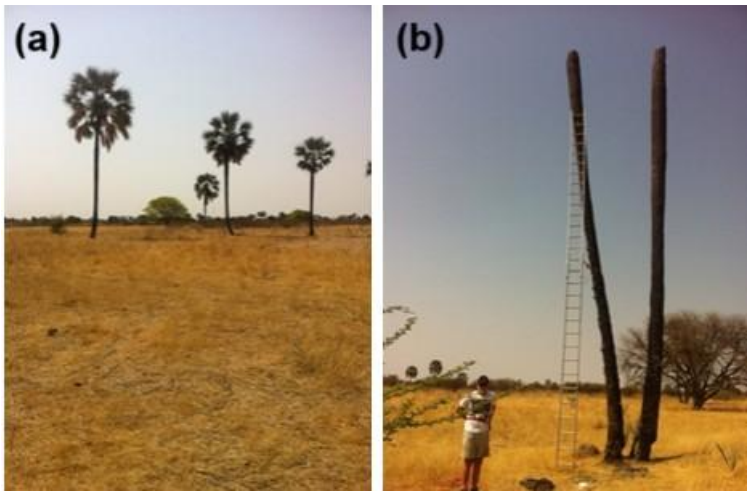

Figure 6. (a) A general view of the breeding habitat of Grey Kestrels, and (b) a nest tree in Namibia.

A main feature of this area is the canal which carries water from the Calueque dam in Angola to Ondangwa. The local population is heavily dependent on this canal which has resulted in a high population density within a short distance north and south of the canal. This seems to be a key to the distribution of kestrels in the area as none were located away from this canal, even in areas of what appeared to be ideal habitat.

All nests found in Namibia were in *Hyphaene* palms, where the top has died and fallen off leaving a hollow at the top (Figure 6). The average height of the nest trees was 10.5 m (n = 5, range 13.5-7 m) and the eggs were situated, on average, 56 cm from the top of the cavity (range 30-100 cm, n=4) and access was mostly from the top of the stem or through a hole on the side (n = 1). The nest sites were unlined and the eggs were laid on the bottom of the nest hole, sometimes in material that had accumulated there from previous breeding attempts. Nest trees were used in three or more consecutive years (n = 3). No Grey Kestrels were found nesting in nearby Hamerkop nests, which were searched in case the kestrels were using them.

Laying dates and egg details

The recorded clutch sizes were 2 (n = 1), 3 (n = 5), and 4 (n = 1). Eggs measured 42.1 x 32.9 mm on average (range 45.1-39.1 x 34.5-30.8 mm; n = 14) and weighed 23.3 g (range 27.9-13.5 g; n = 9). This included one fertile clutch of three, which was smaller and lighter when compared to weight of the others (mean 38.2 x 31.5 mm, 17.5 g). Without this small clutch, the eggs had a mean weight of 27.2 g (27.9-26.1 g; n = 6) and their mean dimensions were 42.4 x 33.0 mm (45.1-41.0 x 34.3-32.9 mm; n = 11). The eggs decreased in size and weight within a given clutch and this might reflect the time of laying with the first laid egg being the largest. Two typical clutches are illustrated in Figure 7. Four additional sites containing chicks were also found; one with a c/4 clutch in the process of hatching and the others with young chicks. There were another two sites found which were suspected of containing chicks, on the basis of the behaviour of the adults and the flies around the top of the stump, but these were not examined closely.

Including the data of nests with young, and back-dating to the laying month using an incubation period of 30 days, the laying months for all breeding records were September (4), October (6) and November (2) during visits to the area between 2006 and 2012.

Figure 7. Two Grey Kestrel clutches from the top of dead palm trees in two different localities in northern Namibia.

Discussion

They lay between January and April in West Africa (Ghana), from August to October in southern Kenya, Tanzania and Angola, but eggs were reported in April in Uganda (Kemp *et al*. 2020). Nests are in tree cavities (Ivory Coast), old stick nests or most often cavities of old Hamerkop (*Scopus umbretta*) nests, even usurping active nests (Kemp *et al.* 2020). They might possibly even breed in crowns or stumps of oil palms in West Africa but this is thought to be unusual (Kemp *et al*. 2020). Kestrels in this study bred in Hamerkop nests in Uganda but exclusively in *Hyphaene* palm trees in Namibia. Free-standing suitable palm stumps for nesting were in relatively short supply during initial visits to the area and as the making of palm wine has increased the number of stumps is likely to result in many more suitable nesting sites in the future.

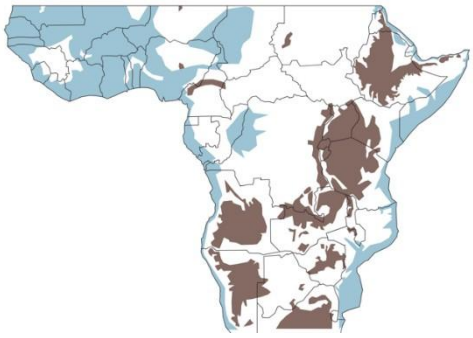

Figure 8. Grey Kestrel distribution in Africa related to altitude. Blue areas are < 350 m, brown areas are > 1200 m.

Grey Kestrels occur in three distinct areas of the African continent (Figure 4b) and which appear to be related to altitude (Figure 8). One is at low altitude (less than 350 m) in West Africa where it is widespread from Gambia to E Nigeria. There are isolated records in the Central African Republic and South Sudan, and it then reappears in E Africa where it ranges in altitude from 1000 m in Uganda up to 2000 m on the slopes of Mt. Kenya. To the north of this, it is absent in the arid low lying country around Lake Turkana and between the Kenyan and Ethiopian borders and then reappears in Ethiopia and Eritrea at quite a high altitude (> 1500).

In Tanzania it was considered an uncommon resident in lowland savannah in the northwest (Zimmerman *et al*., 1996) but there has been considerable eastwards expansion to Mikumi National Park and the coastal lowlands. There has also been expansion into the northern Rift at Tarangire National Park where it is now well established and near Arusha where it is uncommon (Baker, unpublished) and in the Selous Game Reserve (Bennett 2017). It is common all over the Democratic Republic of Congo outside the rainforest (Pedersen, 1999) and individuals have been recorded as far South as Kasaji, Shaba Province (90 km northwest of the Chana Chamuhina; Schouteden, 1971). It is resident in Shaba Province (Brown *et al*., 1992) and extends to Nyanza on the northeast shore of Lake Tanganyika. There are specimens from this entire range, but recent records are lacking. It is a vagrant in northern Malawi (Nhlane 1993), and its status is unclear in the extreme NW of Zambia and there is one record of an immature bird from there (Van Daele 1999). The species appears to benefit from the clearing of natural vegetation (Thiollay, 1977) and given the scale of deforestation at the moment, it could be expected that its range expansion into areas in Malawi and Zambia that used to be miombo woodland is to be expected, and at the expense of Dickinson's Kestrel.

The Angolan population is isolated from the west African and east African birds and it is an uncommon resident in woodlands and open gallery forest and is noticeably more abundant north of Lubango in Huíla, and probably most common in central Angola, where there is a breeding record in a Hamerkop nest from Cusseçe at approx. 13° 26' S; 15° 13' E, at 1472 m (Dean 1999). This information has not been confirmed by any of the current online bird distribution initiatives owing to a lack of observer coverage. Grey Kestrels are two or three times more common than Dickinson's Kestrel and are regular in the south and southeast to the coast towards the Cunene River (Pedro Vas Pinto, per. comm.). With the extent of deforestation, it is likely to extend further east. In Namibia it occurs in a small area north of 18°S and between 14°E and 16°E (Jenkins & Brown, 1997).

The preferred nest sites used by Grey Kestrels across their altitudinal distribution varies. In W. Africa they occur mostly below 350 m and while *Borassus* palms occur there, they apparently prefer to use natural holes in trees for breeding (Kemp *et al.* 2020) but are known to use Hamerkop nests in Mali (Wilson & Wilson 1983). In East Africa, where palms are uncommon at high altitude, Grey Kestrels occur mostly above 1200 m where they breed almost exclusively in Hamerkop nests.

In Angola, Grey Kestrels on the coast could nest in palm trees but there are no known records from there. There is one from a *Hyphaene* palm stump close to the Namibia border some distance inland and probably part of population which extends into Namibia (no date, W.R.J. Dean, pers. comm. to R.J.). So far, the only nests found are exclusively in palm trees very close

to the Angola/Namibia border in quite arid conditions and between 350 m and 1200 m.

General Discussion

Both kestrels are similar in appearance, habitat, prey and in choice of nest site (Kemp & Kirwan 2020, Kemp *et al*. 2020) but are allopatric over much of their distribution, with limited areas of overlap. There are issues with identification in the field, particularly in areas of overlap, and it is important to get this correct if the changes to their distribution are to be accurately recorded. Both species are known to breed in nests made by Hamerkops, which occur in the geographical range of both species. One area of overlap with Dickinson's Kestrel is in southern Tanzania. The other is on the Namibia/Angola border, although this area of overlap was probably much greater in the past. Grey Kestrels seem to outcompete Dickinson's Kestrel in areas where they overlap and they have been recorded removing a young Dickinson's Kestrel from a nest in a palm tree in S. Tanzania (Bennett 2017).

Grey Kestrels are linked with Hamerkop nests in Ethiopia and E and W Africa and central Angola but to date none have been recorded breeding in Hamerkop nests in Namibia. Hamerkop nests are only used by them in East Africa at comparatively high altitudes mostly (>1200 m a.s.l.) where suitable palms and baobabs are scarce or absent. Is this related to the lack of suitable palm trees at these altitudes? Are the birds in Angola/Namibia different to the birds which occur mostly north of the equator? This is an avenue worth investigating further. It seems that both species of kestrel use Hamerkops nests where other suitable nesting holes are scarce. This seems to be the case in West Africa but data on breeding of Grey Kestrels from there is scarce. In East Africa, Grey Kestrels use Hamerkop nests almost exclusively and this has allowed them to occupy quite different habitats and at higher altitudes then the W. African or Namibian populations. The habitat where Grey Kestrels occur in Namibia is quite different to that in east and west Africa and data collected so far indicate that they nest exclusively in palm stumps in this area. Hamerkop nests are used by Dickinson's Kestrels in woodland, apparently where there are no suitably sized nest trees and mostly where palms and baobabs do not occur.

Nests of both species of kestrels in Namibia and Zambia occur in close proximity to local populations who appear not to interfere with them in any way, nesting in palm stumps, close to or even next to, occupied homesteads. Both areas have much in common and contained reasonable populations of both species. Both areas were close to water, are prone to flooding during the rains, have high densities of human population characterized by heavily worked communal farmers in areas of sandy soil. There would appear to be nothing stopping the two species moving east/west and joining up so why have they not done so, and what would happen if they did so? The area between the two localities does not currently have a high human population and without this the clearing of vegetation for agriculture and the creation of necessary open spaces may not occur. Also, the creation of suitable nesting sites as a consequence of the manufacture of palm wine, would be much less frequent.

There are multiple references to the impact of deforestation of habitat on both species. It seems that Grey Kestrels benefit from these activities and Dickinson's Kestrels do not. If this is correct, can we expect the range of Grey Kestrels to continue expanding at the expense of Dickinson's Kestrels, whose range appears to have contracted in recent times. Specimens from the early 1900's in Angola, indicate that Dickinson's Kestrels occurred at the coast, a location from where there are no Dickinson's Kestrel records in recent times. They overlapped with Grey Kestrels over quite a large area, according to specimens collected at that time, but seem to have disappeared from much of this range, while the Grey Kestrels have remained. There are no reliable records of Dickinson's Kestrels from Angola on eBird or iNaturalist which suggests an overall decline of these birds in Angola.

This confirms the comments by Pedro Vas Pinto (pers. comm. to KH) that Grey Kestrels are two or three times more common than Dickinson's Kestrel and this seems to have been a decline since the early 1900's. The reduction in range in Tanzania has been recorded by Neil Baker (per. comm. to KH) and it seems that the general loss of habitat across its former range is having an impact on Dickinson's Kestrel. Do Dickenson's Kestrels get out-competed by Grey Kestrels in these areas once the woodland has been chopped down? This is a contradiction as they seem to thrive in quite degraded habitats provided there are suitable nest sites. It might hinge on the presence or otherwise of Hamerkops in these newly degraded habitats and the speed at which Grey Kestrels occupy these areas.

Dickinson's Kestrels appear to have undergone a significant range contraction in recent times and the cause is uncertain. They appear to have declined in much of Angola, parts of Tanzania, Malawi and Zimbabwe and are a species worthy of further study and population monitoring.

Acknowledgment

Iain Jarvis provided unpublished data on the breeding biology of Dickinson's Kestrel in Zimbabwe.

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Honeyguide **70**(2): 58-59, 2024

Tenth report of the BirdLife Zimbabwe Rarities Committee

Ian Riddell

The records listed here appeared on social media in the form of photographs, in SABAP2, the South African Rare Bird Network (SARBN), as well as Field Observations and notes in *Honeyguide*. These records have been circulated with appropriate experts and the committees of other countries for vetting and decisions where necessary.

Accepted Records

Slaty *Egret* *Egretta vinaceigula*

One photographed at Lake Manyame (1730D3) on 10 December 2003; R. MacDonald. SARBN 11 December 2003.

© Roger MacDonald

Lesser Cuckoo *Cuculus poliocephalus*

Two photographed at Aberfoyle (1832B4) from 4-8 February 2024, one normally coloured and the other hepatic; G. Douglas, A. Bedford-Shaw. SARBN reports 5 & 8 February 2024.

Up to three birds were seen and photographed by various observers until 9 April 2024; D. Smith, M. Saineti and others. Various SARBN reports and WhatsApp platform not referenced here.

© Gary Douglas

Greater Sand Plover *Charadrius leschenaultii*

One photographed on the Zambezi River at Kanyemba's Island, Hurungwe (pentad 1555_2855, 1528D4) on 23 February 2024; M. Wright. SABAP2 ad hoc record.

Palm-nut Vulture *Gypohierax angolensis*

One photographed at Jabulani Safaris, Shangani, (1529C3) on 24 August 2024; L. Terblanche. SARBN 26 August 2024.

Red-necked Falcon Falco chicquera

One photographed at Katiyo, Honde Valley (1833A3) on 13 March 2024; D. Smith. WhatsApp.

One photographed at Katiyo, Honde Valley (1833A3) on 30 March 2024; M. Saineti. Facebook.

© Morgan Saineti

Sooty Falcon *Falco concolor*

One photographed at Haka Park, Harare (1731C3) on 24 February 2024; C. Cragg (2024) and various observers.

© Chris Cragg

Taita Falcon *Falco fasciinucha*
One photographed at Nyanga on 8 January 2024; D. Adams.

Whinchat *Saxicola rubetra*
One photographed at Aberfoyle in the Honde Valley (1832B4), unspecified dates from Hardaker 2012 report October-December 2011; J. Dralle.
One photographed around White Horse Inn-Cloudlands, Vumba (1932B1) on 5 December 2016, reported in Field Observations *Honeyguide* **63**(1&2); N. Perrins. eBird.

Burchell's Starling *Lamprotornis australis*
One photographed at Kazuma Pan, Kazuma National Park (1825B1) around 9 July 2023; J. Marais, J. Whitfield.

European Pied Flycatcher *Ficedula hypoleuca*
One at Ruzawi School, Marondera (1831B1) on 16 June 2024 to at least 2 July 2024; Various observers. See page 67, this issue.


© Roger MacDonald

Great Sparrow *Passer motitensis*
One photographed at Bishopstone Estates, Beitbridge (2129D4) on 14 November 2023; G. Trethowan. Facebook.

Pink-throated Twinspot Hypargos margaritatus
Reported from Swimuwini Camp, Gonarezhou National Park (2131C4) on 3-4 July 2023 (van Zyl 2023). A pair was later photographed on 9 October 2023 (Blake 2023) and photographed again on 28 October 2023; D. Swales. Email.

Yellow Canary *Crithagra flaviventris*
Photographed by Peter Solomon at Dolilo, Hwange National Park (pentad 1840_2600) on 21 November 2023; C. Williamson. Riddell (2024).


Great Sparrow © Georgie Randle

Unconfirmed Records

West African Crested Tern *Thalasseus albididorsalis*
Photographed on the Zambezi a few kilometres above Victoria Falls (1725D4) on 17 December 2023; B. Masuku. Baker (2023); SARBN 11 December 2023.

Discussion

The West African Crested Tern was cited as possible but the identification was not confirmed with any sort of confidence from the photos (Hardaker pers. comm.). The observer did not supply original photos or complete a rarities form with supporting details, which is essential for a new regional record.

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Honeyguide **70**(2): 60-64, 2024.

International Waterbird Census, Zimbabwe – 2024

Ian Riddell

A total of 26 sites were counted on Zimbabwe's International Waterbird Census in 2024, 16 in summer and 17 in winter (Appendix A). Summer counts were carried out in January, February and November 2024, with one count in November 2023, while winter counts were made in June, July and August. The status of the water at sites is shown in the appendix with two sites being over-flooded in summer. Two sites were dry in summer and four in winter. Rainfall was patchy, some areas being flooded whilst others were below average. The only Ramsar site covered was Lake Chivero Bird Sanctuary.

Butler Dam was poorly covered with only a small section below the dam being counted, the main dam now fenced off and requiring prior arrangement to visit.

Participants are encouraged to count any sudden and significant influx that occurs at any time of the year. Coverage of our wetland sites relies on the voluntary services of our members and their often-limited resources so grateful thanks are due to the 26 participants in summer and 21 in winter, including those simply listed as BLZ members. Special thanks are due to those individuals who undertook extensive coverage in Matopos and Hwange. Administration difficulties resulted in Hwange not being covered in winter and later, which affected the results.

Results

A total of 6 525 birds of 129 species was recorded, including one unidentified cisticola, one unidentified duck and one unidentified warbler. No vultures were counted in this census. The results from counts are listed below; the values at the end of each represent the number of birds and the number of sites at which they were recorded, i.e., (8/2) means that 8 birds were counted at 2 sites.

Anatidae

White-faced Duck *Dendrocygna viduata*: Summer: ranged from 4-82 (average 18.1) at 11 sites. Mandavu Dam had 63 in January and Chinga Pan had 82 in January (199/11).
Winter: 4-70 (average 176) from 4 sites, then 419 at Lake Chivero Bird Sanctuary and 500 at Kent Estate dams (1056/6).

Fulvous Duck *Dendrocygna bicolor*: Winter: only 6 at Kent Estate dams in July (6/1).

White-backed Duck *Thalassornis leuconotus*: Summer: 5 at NUST quarries in November 2023 and 9 at Mesilume Dam in November 2024 (5/1).
Winter: 2 at Kent Estate dams and 18 at Mesilume Dam (20/2).

Egyptian Goose *Alopochen aegyptiaca*: Summer: ranged from 2-180 birds (average 32), with higher counts of 178 at Mandavu Dam in January and *c*.180 at Fort Rixon Dam (448/13).
Winter: 2-35 (average 7.3) with the 35 at Lake Chivero Bird Sanctuary (88/12).

Spur-winged Goose *Plectropterus gambensis*: Summer: found in small numbers from 1-4 (8/3).
Winter: 3 at Lake Chivero Bird Sanctuary, 5 at Fort Rixon Dam and 30 at Kent Estate (38/3)

Knob-billed Duck (Comb Duck) *Sarkidiornis melanotus*: Summer: from 1-2 at 3 sites, followed by 14 at Chinga Pan (19/4).
Winter: 3 at Fort Rixon, 9 at SAST and *c*.100 at Kent Estate dams (112/3)

African Pygmy Goose *Nettapus auritus*: Summer: 2 at Chinga Pan and 2 at Mesilume Dam (4/2).
Winter: 2 each at Mesilume and Mpopoma dams and 12 at Kent Estate dams (16/3).

Southern Pochard *Netta erythrophthalma*: Winter: 8 at Kent Estate dams (8/1).

Blue-billed Teal (Hottentot Teal) *Spatula hottentota*: Winter: 1 at Lake Chivero Bird Sanctuary (1/1).

African Black Duck *Anas sparsa*: Winter: 1 at Sandy Spruit Dam, 2 each at Maleme and Pongo dams (5/3).

Red-billed Teal *Anas erythrorhyncha*: Summer: 4-21 (average 11) were poor numbers this season (55/5).
Winter: 2-20 from 5 sites, plus *c*.500 at Kent Estate (551/6).

Podicipedidae

Little Grebe *Tachybaptus ruficollis*: Summer: 1-15 (average 5.5) (33/5).
Winter: 2-5 at 4 sites, then 106 at Lake Chivero Bird Sanctuary in August (120/5).

Apodidae

African Palm Swift *Cypsiurus parvus*: Winter: 27 at Lake Chivero Bird Sanctuary in August (27/1).

White-rumped Swift *Apus caffer*: Summer: 2 at Victoria Falls Sewage Ponds in February (2/1).

Little Swift *Apus affinis*: Summer: 5 at NUST in November 2023 (5/1).

Cuculidae

Senegal Coucal *Centropus senegalensis*: Summer: singles at NUST and Kadoma Textiles Dye Ponds (2/2).
Winter: singles at Lake Chivero Bird Sanctuary and SAST (2/2).

Diderick Cuckoo *Chrysococcyx caprius*: Summer: 2 at NUST in November 2023 and 1 at Suni Pan in January (3/2).

Rallidae

African Crake *Crecopsis egregia*: Summer: 2 at Mahwe Homestead Dam and 4 at Lake Chivero Bird Sanctuary (6/2).

Black Crake *Zapornia flavirostra*: Summer: 1 at Sandy Spruit dam, 4 at Pongo Dam and 7 at Mesilume Dam (12/3).
Winter: 1-5 at 6 sites, then 12 at Lake Chivero Bird Sanctuary (28/7).

Common Moorhen *Gallinula chloropus*: Summer: 3 at Lake Chivero Bird Sanctuary, 4 at Mesilume Dam and 8 at NUST in November 2023 (15/3).
Winter: 1-2 at 4 sites, then 16 at Lake Chivero Bird Sanctuary (22/4).

Red-knobbed Coot *Fulica cristata*: Summer: 1-7 (average 3.5) (14/4).

Gruidae

Grey Crowned Crane *Balearica regulorum*: Summer: 1 at Mandavu Dam and 2 at Masuma Pan/Dam (3/2).

Ciconiidae

Marabou Stork *Leptoptilos crumenifer*: Summer: 2 at Dwarf Goose Pan, 9 at Mandavu Dam and 24 at Victoria Falls Sewage Ponds (35/3).
Winter: 34 at Victoria Falls Sewage Ponds and 86 at Kent Estate dams (120/2).

Yellow-billed Stork *Mycteria ibis*: Summer: 1 at Suni Pan and 33 at Mandavu Dam (34/2).
Winter: 2-4 at 3 sites, plus 16 at Pongo Dam (26/4).

African Openbill *Anastomus lamelligerus*: Summer: 1-6 at 3 sites, plus 13 at Chinga Pan and 17 at Fort Rixon (40/5).
Winter: 40 at Kent Estate dams (40/1).

Abdim's Stork *Ciconia abdimii*: Summer: very low numbers of 16 at Kadoma Textiles Dye Ponds (16/1).

Woolly-necked Stork *Ciconia episcopus*: Summer: 1 at Shumba pumped pan and 7 at Dwarf Goose Pan (8/2).

Saddle-billed Stork *Ephippiorhynchus senegalensis*: Winter: 1 at Mpopoma Dam and 2 at Kent Estate dams (3/2).

Threskiornithidae

African Spoonbill *Platalea alba*: Summer: 2 each at Chinga Pan and Fort Rixon, and 16 at Mandavu Dam (20/3).
Winter: 2 at Lake Chivero Bird Sanctuary, 4 at Kent Estate dams and 6 at Mpopoma Dam (12/3).

African Sacred Ibis *Threskiornis aethiopicus*: Summer: numbers ranged from 2-7 (average 5.5) (22/4).
Winter: 7-10 at 3 sites, then 87 at Victoria Falls Sewage Ponds (134/4).

Hadeda Ibis *Bostrychia hagedash*: Summer: 1 & 2 Suni Pan and Fort Rixon Dam, respectively, and 2 at SAST (3/2).
Winter: 2 at SAST, Khami Dam (2/1).

Glossy Ibis *Plegadis falcinellus*: Summer: 5 at Kadoma Textiles Dye Ponds (5/1).
Winter: 4 at Kent Estate dams, 5 at Pongo Dam and 20 at Lake Chivero Bird Sanctuary (29/3).

Ardeidae

Little Bittern *Ixobrychus minutus*: Winter: 1 at Lake Chivero Bird Sanctuary (1/1).

Black-crowned Night-heron *Nycticorax nycticorax*: Summer: 2 at NUST in November 2023 (2/1).

Green-backed Heron *Butorides striata*: Summer: 1-3 birds (8/4).
Winter: 1-2 (3/2).

Squacco Heron *Ardeola ralloides*: Summer: 3 each at Chinga Pan and Lake Chivero Bird Sanctuary (6/2).
Winter: 1 each at 2 sites, then 18 at Lake Chivero Bird Sanctuary (20/3).

Cattle Egret *Bubulcus ibis*: Summer: 1-5 at 6 sites, followed by 110 at Victoria Falls Sewage Ponds and 143 at Chinga Pan (276/8).
Winter: 1-44 (average 26) (104/4).

Grey Heron *Ardea cinerea*: Summer: 1-6 at 4 sites, then 20 at Mandavu Dam (31/5).
Winter: from 1-3 at 5 sites, then 8 at Kent Estate and 13 at Lake Chivero Bird Sanctuary (30/7).

Black-headed Heron *Ardea melanocephala*: Summer: 1-6 (11/4).
Winter: 3-4 (9/3).

Goliath Heron *Ardea goliath*: Summer: 1 at Suni Pan (1/1).

Purple Heron *Ardea purpurea*: Summer: 1 at Lake Chivero Bird Sanctuary (1/1).
Winter: 1 at Kent Estate dams and 3 at Lake Chivero Bird Sanctuary (4/2).

Great Egret *Ardea alba*: Summer: 1-5 (average 2.3) (16/7).
Winter: 1-7 (average 2.7). Mpopoma Dam had a bird in June and July (16/6).

Yellow-billed Egret *Ardea intermedia*: Summer: 1 & 2 at Mandavu Dam and Fort Rixon, respectively (3/2).
Winter: 1-3 at 5 sites (10/5).

Black Heron *Egretta ardesiaca*: Winter: 1 at Pongo Dam and 17 at Lake Chivero Bird Sanctuary (18/2).

Little Egret *Egretta garzetta*: Summer: from 1-5 (average 2) at 4 sites, then 15 at Mandavu (23/5).
Winter: 1 at Mpopoma Dam and 5 each at Lake Chivero Bird Sanctuary and Pongo Dam (11/3).

Scopidae

Hamerkop *Scopus umbretta*: Summer: ranged from 1-4 (8/4).
Winter: 2-4 (9/3).

Pelecanidae

Great White Pelican *Pelecanus onocrotalus*: 1 at Kent Estate dams (1/1).

Phalacrocoracidae

Reed Cormorant *Microcarbo africanus*: Summer: 1-5 at 6 sites (average 3.2), plus 27 at Lake Chivero Bird Sanctuary (46/7).
Winter: 1-4 (average 2.4) from 7 sites, plus 11 at Lake Chivero Bird Sanctuary (30/8).

White-breasted Cormorant *Phalacrocorax lucidus*: Summer: low numbers of 1 & 5 at 2 sites, then 129 at Lake Chivero Bird Sanctuary (135/3).
Winter: 1 & 8 at 2 sites, then 8 at Pongo Dam and 108 at Lake Chivero Bird Sanctuary (145/4).

Anhingidae

African Darter *Anhinga rufa*: 3 each at Mandavu and Chinga Pan (6/2).
Winter: 1 each at Mpopoma and Toghwana Dams (2/2).

Burhinidae

Water Thick-knee *Burhinus vermiculatus*: Summer: 1-3 from 4 sites, then 12 at Mandavu (20/5).
Winter: 2-6 (11/3).

Spotted Thick-knee *Burhinus capensis*: 1 at Mandavu Dam in January (1/1).

Recurvirostridae

Black-winged Stilt *Himantopus himantopus*: Summer: 7-16 (average 12.7) from 3 sites, then 36 at Kadoma Textiles Dye Ponds and 103 at Mandavu Dam (480/8).
Winter: 2-11 (average 6.8) from 5 sites, then 33 at Victoria Falls Sewage Ponds (67/6).

Charadriidae

Kittlitz's Plover *Charadrius pecuarius*: Summer: 2 at Fort Rixon Dam (2/1).
Winter: 2 at Fort Rixon Dam and 4 at Kent Estate dams (6/2).

Three-banded Plover *Charadrius tricollaris*: Summer: 1-3 at 6 sites, plus 7 at Suni Pan (20/7).
Winter: 1-5 (average 3) (21/7).

Blacksmith Lapwing *Vanellus armatus*: Summer: 2-31 (average 10.3) (123/12).
Winter: 1-10 (average 4.3) (43/10).

African Wattled Lapwing *Vanellus senegallus*: Summer: 5 at Suni Pan (5/1).
Winter: 2 & 6 at 2 sites, plus 16 at Kent Estate dams (24/3).

Jacanidae

African Jacana *Actophilornis africanus*: Summer: 2-22 (average 9) (63/7).
Winter: 1-18 (average 6.8) (75/10).

Scolopacidae

Ruff *Philomachus pugnax*: Summer: 10 at Mandavu and 82 at Kadoma Textiles Dye Ponds (92/2).
Winter: 4 at Lake Chivero Bird Sanctuary (4/1).

Little Stint *Calidris minuta*: Summer: 12 at Kadoma Textiles Dye Ponds (12/1).

African Snipe *Gallinago nigripennis*: Winter: 2 at Kent Estate dams and 4 at Pongo Dam (6/2).

Common Sandpiper *Actitis hypoleucos*: Summer: low numbers with 1 at Mandavu, 2 at Suni Pan and 4 at Fort Rixon (7/3).

Common Greenshank *Tringa nebularia*: Summer: only 1 at Suni Pan (1/1).
Winter: 2 at Kent Estate dams (2/1).

Wood Sandpiper *Tringa glareola*: Summer: 1-17 (average 7.3), the high count from Victoria Falls Sewage Ponds (58/8).

Marsh Sandpiper *Tringa stagnatilis*: Summer: only 3 at Kadoma Textiles Dye Ponds (3/1).

Glareolidae

Three-banded Courser *Rhinoptilus cinctus*: Summer: 1 at NUST in November 2023 (1/1).

Collared Pratincole *Glareola pratincola*: Summer: 17 at Mandavu Dam and 72 at Fort Rixon Dam (89/2).

Laridae

African Skimmer *Rynchops flavirostris*: Summer: 10 at Mandavu Dam (10/1).

Grey-headed Gull *Chroicocephalus cirrocephalus*: Summer: 5 at Lake Chivero Bird Sanctuary (5/1).
Winter: *c*.80 at Lake Chivero Bird Sanctuary (80/1).

Whiskered Tern *Chlidonias hybrida*: Summer: 1 at Pongo Dam and 17 at Mandavu Dam (18/2).

White-winged Tern *Chlidonias leucopterus*: Summer: 1 at Lake Chivero Bird Sanctuary (1/1).

Tytonidae

Marsh Owl *Asio capensis*: Winter: 2 at Kent Estate dams (2/1).

Pandionidae

Osprey *Pandion haliaetus*: Summer: 1 at Chinga Pan (1/1).

Accipitridae

Black-shouldered Kite *Elanus caeruleus*: Summer: 1 at Lake Chivero Bird Sanctuary (1/1).
Winter: 1 at Lake Chivero Bird Sanctuary (1/1).

Black-chested Snake-eagle *Circaetus pectoralis*: Summer: 1 each at Kadoma Textiles Dye Ponds and Lake Chivero Bird Sanctuary (2/2).

Long-crested Eagle *Lophaetus occipitalis*: Summer: 1 at Lake Chivero Bird Sanctuary (1/1).

African Fish Eagle *Haliaeetus vocifer*: Summer: 1-2 at 10 sites, then 13 at Lake Chivero Bird Sanctuary (25/11).
Winter: 1-2 at 7 sites, then 9 at Lake Chivero Bird Sanctuary (17/8).

Yellow-billed Kite *Milvus aegyptius*: Summer: 1 each at Dwarf Goose Pan and Mandavu Dam, 3 at Lake Chivero Bird Sanctuary and 8 at Shumba pumped pan (13/4).

Meropidae

White-fronted Bee-eater *Merops bullockoides*: Summer: 3 at Chinga Pan, 5 at Nust in November 2023, and 6 each at and Mbonisa Weir and Suni Pan (20/4).

Southern Carmine Bee-eater *Merops nubicoides*: Summer: only in Hwange with 3 at Masuma Pan/Dam, 4 at Shumba pumped pan and 11 at Dwarf Goose Pan (18/3).

Blue-cheeked Bee-eater *Merops persicus*: Summer: 4 at Shumba pumped pan and 6 at Suni Pan (10/2).

European Bee-eater *Merops apiaster*: Summer: 3-27 (average 14) (70/5).

Little Bee-eater *Merops pusillus*: Summer: 1-5 at 5 sites (12/5).
Winter: 1-2 (5/3).

Alcedinidae

Malachite Kingfisher *Corythornis cristata*: Winter: 1-2 at 5 sites (6/5).

Giant Kingfisher *Megaceryle maxima*: Summer: 2 at Lake Chivero Bird Sanctuary (2/1).
Winter: 2 at Kent Estate and singles at Pongo Dam and Fort Rixon (4/3).

Pied Kingfisher *Ceryle rudis*: Summer: 2-5 birds (average 3) (21/7).
Winter: 1-5 (average 2.2) (22/9).

Brown-hooded Kingfisher *Halcyon albiventris*: Summer: 1 at NUST (1/1).

Woodland Kingfisher *Halcyon senegalensis*: Winter: 1 at Sandy Spruit dam, 2 at Mandavu Dam and 6 at Suni Pan (9/3).

Alaudidae

Rufous-naped Lark *Mirafra africana*: Summer: 3 at Shumba pumped pan (3/1).

Cisticolidae

Red-faced Cisticola *Cisticola erythrops*: Summer: 1 at Kadoma Textiles Dye Ponds and 3 at Lake Chivero Bird Sanctuary (4/2).
Winter: 4 at Butler Dam and 10 at Lake Chivero Bird Sanctuary (12/2).

Rattling Cisticola *Cisticola chiniana*: Summer: 1 at Sandy Spruit dam (1/1).

Levaillant's Cisticola *Cisticola tinniens*: Summer: 1 at Lake Chivero Bird Sanctuary (1/1).
Winter: 6 at Lake Chivero Bird Sanctuary (6/1).

Croaking Cisticola *Cisticola natalensis*: Summer: 4 at Lake Chivero Bird Sanctuary (4/1).

Zitting Cisticola *Cisticola juncidis*: Summer: 1-3 at 3 sites (5/3).
Winter: 1 at Lake Chivero Bird Sanctuary (1/1).

Tawny-flanked Prinia *Prinia subflava*: Summer: 1-2 (4/3).
Winter: 2-4 (16/6).

Acrocephalidae

Sedge Warbler *Acrocephalus schoenobaenus*: Summer: 2 at Lake Chivero Bird Sanctuary (2/1).

African Reed Warbler *Acrocephalus baeticatus*: Summer: 5 at Lake Chivero Bird Sanctuary (5/1).

Lesser Swamp Warbler *Acrocephalus gracilirostris*: Summer: 1 at Lake Chivero Bird Sanctuary (1/1).

Winter: 1 at Butler Dam and 14 at Lake Chivero Bird Sanctuary (15/2).

Great Reed Warbler *Acrocephalus arundinaceus*: Summer: 3 at Lake Chivero Bird Sanctuary (3/1).

Locustellidae

Little Rush Warbler *Bradypterus baboecala*: Summer: 1 at Pongo Dam and 4 at Lake Chivero Bird Sanctuary (5/2).
Winter: 2 at Butler Dam and 12 at Lake Chivero Bird Sanctuary (14/2).

Hirundinidae

Grey-rumped Swallow *Pseudhirundo griseopyga*: Summer: 11 at Lake Chivero Bird Sanctuary (11/1).

Lesser Striped Swallow *Cecropis abyssinica*: Summer: 1 at NUST and 2 at Victoria Falls Sewage Ponds (3/2).
Winter: 1& 2 at 2 sites, then 7 at SAST (10/3).

White-throated Swallow *Hirundo albigularis*: Summer: 1 at Sandy Spruit dam (1/1).

Wire-tailed Swallow *Hirundo smithii*: Summer: 5 at Lake Chivero Bird Sanctuary (5/1).
Winter: 2 at 2 sites and 6 at Lake Chivero Bird Sanctuary (10/3).

Barn Swallow *Hirundo rustica*: Summer: 5-40 (average 19.1) at 9 sites (172/9).

Brown-throated Martin *Riparia paludicola*: Winter: 1 at Lake Chivero Bird Sanctuary (1/1).

Muscicapidae

African Stonechat *Saxicola torquatus*: Summer: 2 at Lake Chivero Bird Sanctuary (2/1).
Winter: 2 at Lake Chivero Bird Sanctuary and 1 at Butler Dam (3/1).

Ploceidae

Thick-billed Weaver *Amblyospiza albifrons*: 3 at Lake Chivero Bird Sanctuary (3/1).
Winter**:** 4 at Lake Chivero Bird Sanctuary (4/1).

Note: Counting *Euplectes* spp. is difficult because breeding males are conspicuous but the females are not, and so their numbers are almost certainly underestimated and they may be altogether overlooked in winter.

Southern Red Bishop *Euplectes orix*: Summer: 2-27 (average 9.2), the high count at Lake Chivero Bird Sanctuary (46/5).

Red-collared Widowbird *Euplectes ardens*: Summer: 5 at Lake Chivero Bird Sanctuary (5/1).

Yellow Bishop *Euplectes capensis*: Summer: 1-4 (7/3).

Yellow-mantled Widowbird *Euplectes macroura*: Summer: only 3 at Lake Chivero Bird Sanctuary (3/1).

White-winged Widowbird *Euplectes albonotatus*: Summer: 9 at Kadoma Textiles Dye Ponds and 11 at Pongo Dam (20/2).

Spectacled Weaver *Ploceus ocularis*: Summer: 3 at Lake Chivero Bird Sanctuary (3/1).
Winter: 3 at Lake Chivero Bird Sanctuary (3/1).

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Golden Weaver *Ploceus xanthops*: Summer: 1 at NUST in November 2023.

Lesser Masked Weaver *Ploceus intermedius*: Summer: 5 at Lake Chivero Bird Sanctuary (5/1).

Southern Masked Weaver *Ploceus velatus*: Summer: 1-7 at 3 sites, then 32 at Mahwe Homestead Dam and *c*.100 at Chinga Pan (144/5).

Village Weaver *Ploceus cucullatus*: Winter: 8 at Lake Chivero Bird Sanctuary (8/1).

Estrildidae

Common Waxbill *Estrilda astrild*: Summer: 2 & 6 from NUST and Lake Chivero Bird Sanctuary, respectively (8/2).
Winter: 5 & 9 at 2 sites and 15 at Mahwe Homestead Dam (29/3).

Orange-breasted Waxbill *Amandava subflava*: Summer: 17 at Lake Chivero Bird Sanctuary (17/1).

Bronze Mannikin *Spermestes cucullata*: Summer: 6 at NUST and 29 at Lake Chivero Bird Sanctuary (35/2).

Viduidae

Pin-tailed Whydah *Vidua macroura*: Summer: 2 at NUST in November 2023 (2/1).

Motacillidae

African Pipit *Anthus cinnamomeus*: Summer: I at NUST in November 2023 (1/1).
Winter: 3 at Fort Rixon (3/1).

Yellow-throated Longclaw *Macronyx croceus*: Winter: 1 at Butler Dam, 2 from Lake Chivero Bird Sanctuary and 5 from Kent Estate (8/3).

Cape Wagtail *Motacilla capensis*: Winter: 2 at Fort Rixon (2/1).

African Pied Wagtail *Motacilla aguimp*: Summer: 1 at Kadoma Textiles Dye Ponds and 2 at Mandavu Dam (33/2).
Winter: 1 each at Fort Rixon and Kent Estate dams (2/2).

Fringillidae

Black-throated Canary *Crithagra atrogularis*: Summer: 12 at Mandavu Dam (12/1).
Winter: 5 at SAST and 11 at Fort Rixon (16/2).

Yellow-fronted Canary *Crithagra mozambicus*: Summer: 1-2 (5/3).

Brimstone Canary *Crithagra sulphuratus*: Summer: 1 at NUST in November 2023 (1/1).
Winter: 2 at SAST (2/1).

Participants

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Appendix A

26 Sites covered in 2024 showing Month (11-8 = November 2023 – November 2024); the symbols ^{o} and ^{d} = sites over-flooded and dry respectively. Ramsar sites are highlighted in bold.

Name	District	Months
Butler Dam	Harare	7
Chinga Pan	Bikita	1
Chitampa Dam	Matobo	7
Dwarf Goose Pan	Hwange	1^{o}
Fort Rixon Dam	Insiza	2, 7
Kadoma Textiles Dye Ponds	Kadoma	1
Kent Estate dams	Norton	7
Lake Chivero Bird Sanctuary	**Zvimba**	1^{o}, 8
Madingazulu Dam	Matobo	6^{d}
Mahwe Homestead Dam	Insiza	2, 7
Maleme Dam	Matobo	6
Mandavu Dam	Hwange	1
Masuma Pan and Dam	Hwange	1
Mbonisa Weir, Falcon College	Esigodini	1^{d}
Mesilume Dam	Matobo	6^{d}, 11
Mpopoma Dam	Matobo	6, 7
Mtsheleli Dam	Matobo	7^{d}
Nswatugi Dam	Matobo	6^{d}
NUST quarries	Bulawayo	11 (2023)
Pongo Dam	Insiza	2, 7
Sandy Spruit Dam	Matobo	2, 6
SAST (Khami sewage works)	Bulawayo	8
Shumba pumped Pan	Hwange	1
Suni Pan	Bikita	1^{d}
Toghwana Dam	Matobo	7
Victoria Falls Sewage Ponds	Hwange	2, 7

Blue-billed Teal on the nest of a Common Moorhen

On 8 September 2024, I was photographing ducks on the main pond at Dandaro Village in Harare. I was also watching with interest a Common Moorhen *Gallinula chloropus* building a nest amongst the tangle of a bush on the edge of the pond. The bird was seen to swim with some impressively large pieces of dead vegetation collected from the pond surface and drag them onto the nest (Figures 1 and 2). This indicated that the moorhen was quite strong! During this process it 'tested' some other large floating pieces whilst swimming around but rejected them, and also added some small plant material.

Only a single bird was involved, though *Roberts 7* says the nest is 'built by both sexes; male brings material while female builds.' The sex of this bird was not determined.

After some time, the bird swam to the pond edge and disappeared behind the thicket, though where it went to could not be seen. Whilst absent a Blue-billed Teal (Hottentot Teal) *Spatula hottentota* swam to the nest, climbed on (Fig. 3), turned to face the pond and snuggled down with a waggling motion. I got the impression that it intended to lay eggs, though this was not confirmed as I left shortly afterwards and before the return of the moorhen. *Roberts 7* says this teal occasionally uses the old nests of the Common Moorhen and African Purple Swamphen *Porphyrio madagascariensis*. Despite egg-laying being unconfirmed it appears that the teal may be opportunistic, given its interest in a nest under construction. It would have been interesting to see how the two species would have interacted if the teal was still seated when the moorhen returned.

Figure 1. Moorhen leaving the nest after placing plant material.

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Figure 2. Moorhen returning with a small twig.

Figure 3. Blue-billed Teal climbs onto the nest.

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Unusual gregarious feeding behaviour of the Red-eyed Dove

The following note is based on my personal observations of the Red-eyed Dove (*Streptopelia semitorquata*), a very common garden species in Zimbabwe, that is often observed feeding on the ground looking for seeds, grains and other tasty morsels. Large flocks of these birds have also been observed feeding out of dog food bowls containing cooked porridge mixed with maize meal, pet food and other morsels of meat or bones. This potentially leaves them susceptible to predation by domestic cats and dogs. This flocking behaviour is unusual as normally they are not gregarious, but prefer to feed alone or, at most, in pairs. I suggest that perhaps the conditioning of flocks to feed and attraction towards presentations of feed, in addition to the abundance of feed presented in bowls, has directed their behaviour to change towards flock feeding, some of which was indicated by conflict between individuals on perches available on the bowl edges, as observed in Harare gardens located in Vainona, Belgravia and Mabelreign.

Furthermore, it is unfortunate that many doves and pigeons in gardens and on roads, are killed by passing motorists and/or for sport. Indeed, during the 1970-1980's, it was common for young boys with pellet guns or catapults to shoot birds, particularly so in flocks. Additionally, quite a few were hit by passing cars and trucks, and lay dead on the verges, as observed when I rode my bicycle. Their demise was more evident by their increased flocking near roads and, hence, the greater likelihood of being killed.

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Pied Crows in Zimbabwe – Farm and City Socialites

Crows have not been studied much in Zimbabwe, either in the wild or in cities. Furthermore, little has been studied on crows congregating around restaurants, mobbing or using tools. I have observed that, particularly in the 1990's-early 2000's, crows were eliminated on farms situated close to residential urban areas including such as Pomona and beyond, where ostriches and poultry or crops were reared or cultivated. Large flocks of crows would congregate and eat up feed including pellets, much to the chagrin of the farmers and their workers. They were sometimes regarded as troublesome and a few were shot with pellet guns or 0.22 rifles.

On reflection, this elimination caused them to de-group and, furthermore, to try and assist/peck at their dead or wounded compatriots, abandon nests and neglect fledglings, often located in the high reaches of cypress or eucalyptus trees. My motivation currently, is to encourage students enrolled at Zimbabwean universities to take up studies on crows. In notes published in *Honeyguide* (Louw 2018), and associated feeding behaviours with Cattle Egrets and Marabou Storks (Riddell 2020), and caching (Riddell 2003[a]; 2004[a]) and diet (Riddell 2003[b]; 2004[b]), Pied Crows (*Corvus albus*) certainly indicate unique behaviours.

However, due to a dislike of 'nuisance' crows, there has neither been monitoring nor protection of these opportunistic scavengers. Their ecological role is, however, useful in an urban-vlei environment in which road kills of rodents and insects predominate. It is my opinion, that a well-managed municipal refuse collection service and restaurant licencing, would permit the clean-up of discarded food waste, including chicken bones and other items, thus attenuating crow congregations around dustbins. Increased crow numbers may accentuate pressure on smaller creatures like reptiles and insects, although this may extend to harassment of poultry or weakened livestock. They may scour strand-lines, raid birds' nests, uproot worms and invertebrates, and feed on fruit, seeds and fish. Large carcasses attract significant numbers, and they may mob up against raptors and take food from them, as frequently reported on farms and in Hwange. Telephone poles encourage crow nesting in areas with fewer trees, and are observed as large untidy structures of sticks lined in the inside with fur (Riddell 2011), feathers, soft grasses and other materials.

The remarkable ability of a crow to remain loyal and develop a fairly rich vocabulary in captivity, are added bonuses to *in-situ* conservation projects and ecotourism within wildlife sanctuaries. I have observed such behaviour at both the Lion Park and at Chipangali Wildlife Sanctuary. Crows live in complex social structures and their adept skills in using tools like twigs, are remarkable – I observed crows using bits of grass to catch termites from mounds. Furthermore, crows use sophisticated visual-sensory mechanisms for recognition and together with instinctual emotional cues, modulate behavioural responses. I have observed crows specifically avoid or give a respectful distance to areas of danger like dog food bowls. In my opinion, improved management of avian species holistically, including crows, will inevitably maintain and enhance biodiversity in cities and thus attenuate any significant human-crow conflict. Hence, the Pied Crow, like all other birds, needs to be protected and their distribution monitored.

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A European Pied Flycatcher: The first record for Zimbabwe

It was a crisp Sunday morning in Marondera on 16 June 2024 on which to celebrate Father's Day at Ruzawi School near Marondera (1831 B1). My in-laws' garden in the school grounds is in an area of Miombo woodland, mainly comprising *Brachystegia spiciformis*, *Parinari curatellifolia* and *Julbernardia globiflora*. This was an ideal setting for teaching family and friends the fun art of birdwatching and before long a bird party came through and included two flycatcher species, an African Dusky *Muscicapa adusta* and an Ashy *M. caerulescens*, as well as two kinds of apalis, a Bar-throated *Apalis thoracica* and a Yellow-breasted *A. flavida*.

At 11.20 I noticed a distinctive flick of a black and white flycatcher. It had noticeable white outer rectrices and a lengthy white chevron pattern on the forewings in flight. My first guess was an unseasonal Collared Flycatcher *Ficedula albicollis* but on watching it, this bird did not seem to behave like that species. The Collared, for instance, tends to feed towards the top of trees and bushes whereas this bird foraged lower down. I also noticed the wing bar was thinner than that of the Collared and did not extend to the edge of the wing. This bird was also more boldly brown than the female Collared. It was perched on a fence from which it hunted on two occasions. It also flew onto a patch of gravel chips, competing for quarry with an Ashy Flycatcher.

I tried a number of times to get a photograph with no success, but finally I managed to capture three images of the bird while it was perched on some open branches and was satisfied they showed its diagnostic features. I immediately sent the photographs to Gary Douglas who identified the bird as a European Pied Flycatcher *Ficedula hypoleuca*. The bird's identity was also confirmed by authorities in South Africa and Europe. It is Zimbabwe's first record of this species and its presence here was clearly a case of reverse migration.

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Figures 1 & 2. European Pied Flycatcher © Roger MacDonald

Notes on Spotted Creeper breeding behaviour

On 2 December 2023, whilst on the Birding Big Day at Gosho Park, I heard Spotted Creeper *Salpornis salvadori* calls in the miombo woodland and we went to investigate. An adult was found, but this was not where the calls came from, and moving on some 80 m I found a noisy fledgling begging for food. The youngster was quite low down in some small msasa *Brachystegia spiciformis* trees on the edge of a dirt road and attended to by adults bringing it food. We enjoyed superlative views for some 15 minutes as *three* adults worked tirelessly to feed the stationary fledgling. There was some calling by some of the adults at the tree and after a time the group moved on to other trees with us following.

According to *Roberts VII* it is uncertain whether both adults feed nestlings, and, contradictorily, states that only one bird at a time brings food to nestlings. However, it was clear from this observation that both feed fledglings. The relationship of the third adult feeding the fledgling was unknown but especially interesting and nest-helpers are not documented for this species.

Roberts VII also states that incubation is by the female only, and she is fed on nest by the male, but Riddell (2014) recorded both taking turns on the nest. P. Zwanikken (pers. comm.) has also seen both sexes incubating a nest and feeding fledglings at Gosho Park. Similarly, del Hoyo *et al*. (2020) also say that chicks are brooded and fed by both parents.

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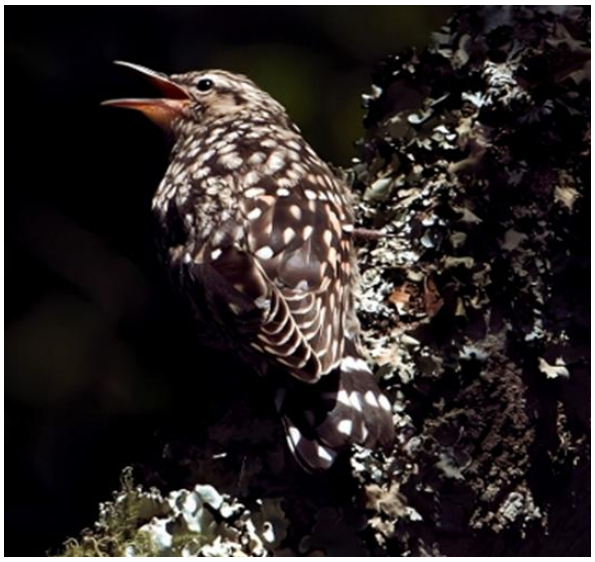

Figure 1. A Spotted Creeper at Gosho Park. Photo © Ian Riddell.

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Does garden bird hunting contribute to species decline?

This note includes my personal observations of two examples of commonly observed birds in the gardens of Zimbabwe, namely the Common Fiscal (*Lanius collaris*) and the Dark-capped Bulbul (*Pycnonotus barbatus*). Both species are associated with human habitation, including gardens and are very noticeable, often perched on top of poles, branches and on other vantage points. Consequently, they often attract the attention of boys practicing their hunting skills, although, only very occasionally do the kills end up in the pot.

The Common Fiscal frequently impales its prey on sharp acacia thorns or barbed-wired fencing, as a larder point but this perceived 'cruel' behaviour, should not justify its extermination. Indeed, its close association with housing and cultivated fields, means it has an important role in keeping domestic and agricultural pests at bay, and should, therefore, be conserved.

The Dark-capped Bulbul is often spotted in cheerful, communicative and friendly pairs, but becomes agitated when snakes or small carnivores like cats and mongooses are seen in the locality, hence necessitating its protection. I have observed this as a useful warning cue in rural villages in Chipinge raising chickens. Based on my childhood observations in Chipinga (now Chipinge) during the 1970's and Harare in the 1980's, boys with pellet guns or catapults shot shrikes and bulbuls as they were perched, or calling and thus easily spotted, which may have contributed to some decline thereof. However, due to ecological changes and denser vegetation, particularly in gardens and surrounding vleis, greenbelts or wetlands, boubou shrikes have become increasingly favoured.

All native Zimbabwean bird species should be conserved and their habitats protected (Cooper & Tennett, 2008. *Zimbabwe Wildlife Journal* October, p. 4-5); it is unfortunate that 50% of these habitats have been lost in Zimbabwe. Education from an early age is essential and, indeed, where birdlife is abundant, an ecosystem is regarded as healthy if unmolested and free of pollutants, dumping and adverse interferences and/or raw spillages including sewerage.

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December 2023 to May 2024

C.T. Baker

The 2023-24 rainy season was short-lived and conditions dried out rapidly from as early as February in some areas. Heavy showers fell on the eastern half of the country on the night of 16 December and Harare received up to 120 mm on the 21st. Only patchy rain fell before then and temperatures were high throughout the country. Rainfall in the second half of the season was generally poor and ended early.

In a year such as this, it is not surprising that many of our summer migrants were reported early in the season only to disappear a short time later. Palearctic *Acrocephalus* warblers were almost entirely absent and just one migrant harrier was found.

On the plus side, many species mentioned in these Observations were found in new, unusual or under-reported areas. From the Shangani area, for example, came reports of several species that were well out of range, most notably **Dickinson's Kestrel** *Falco dickinsoni*, **Sombre Greenbul** *Andropadus importunus*, **Yellow-billed Oxpecker** *Buphagus africanus* and **Cuckoo Finch** *Anomalospiza imberbis*.

Where mention is made in the text to the Atlas it refers to Harrison *et al*. 1997. *The atlas of southern African birds* and not to the current SABAP2 exercise. Records submitted by Ian Riddell from input to SABAP2 are identified with the observers' initials. Reports have also been obtained from BLZ's WhatsApp sites and other social media.

The symbol † denotes a Quarter Degree Square in which the relevant species was not recorded in the Atlas nor subsequently in *Honeyguide*.

Rarities

A **Palm-nut Vulture** *Gypohierax angolensis* was reported a number of times in Chiredzi town (2031 B1†) from late February to 8 March (MC, NM). The **Sooty Falcon** *Falco concolor* seen on 24 February at Haka Park, Harare (1731 C3) (CC) was reported in detail in *Honeyguide* **70**: 15. This was the second sighting of this scarce species within Harare, the first being at the National Botanic Gardens in 2014 (*Honeyguide* **60**(2): 35).

A **Greater Sand Plover** *Charadrius leschenaultii* was on a sandbank just east of the Zambezi-Kafue confluence (1528 D4†) on 24 February (MWr). If accepted, it will become only the third confirmed Zimbabwe record.

Many observers reported two **Lesser Cuckoos** *Cuculus poliocephalus* at Aberfoyle Tea Estates (1832 B4) from 5 February, one hepatic the other normal, and at least three on the 15th. Ones and twos were seen regularly up to 9 April. Local Guide MS considered them to be widespread and numerous, and recorded them at various sites including Wamba Dam and Eastern Highlands Tea Estates (1832 B4). In the same area on 3 March a **Barred Long-tailed Cuckoo** *Cercococcyx montanus* at Aberfoyle Lodge (SW) became the second record from that Estate, the first being an individual in February 1997.

Ostrich, Waterbirds and allied species

A most unusual **Common Ostrich** *Struthio camelus* record came from the Save Valley in the Chipangayi area (2032 A4†) in February (CCr) the provenance of which is unknown.

Over 40 **Great White Pelicans** *Pelecanus onocrotalus* were at Chawara Harbour, Kariba (1628 D2), on 16 April (CN). About 20 adults and a dozen juveniles were at Sian Simba Camp, Zambezi NP (1725 D3), on 20 and 21 April (JB, CB) and seven appeared at Mbiza Pan, Hwange NP (1827 C3), on the 24th (WvdB). About ten **Pink-backed Pelicans** *P. rufescens* were at Mandavu Dam, Hwange NP (1826 C2), in the last week of May (DWd); at least 17 on Victoria Falls Safari Lodge pan (1725 D4) on 28 May (CB) and about 20 nearby at Kandahar Island, Zambezi NP, two days later (SHa) were no doubt the same flock.

Figure 1. Pink-backed Pelicans at Victoria Falls.
Photo © Colin Baker

Given the scarcity of **White-breasted Cormorants** *Phalacrocorax lucidus* in many areas, four at Connemara Lakes, Troutbeck (1832 B2), on 9 January (NMa) is good news. **African Darters** *Anhinga rufa* fall into the same category. Only three were seen in the Binga (1727 C2)/Chete (1727 B3) area of Lake Kariba on 3-8 January (TF) and four on Kent Estate, near Norton (1830 B1), on 24 February were probably evacuees from Lake Chivero where the species is no longer found (The Babbler 177).

A good number of about 33 **Grey Herons** *Ardea cinerea* were at Lake Chivero Bird Sanctuary (1730 D4) on 2 December (IR). On Sango Ranch in January, single **Goliath Herons** *A. goliath* were at Suni Pan (2032 A4) on the 17th and Chinga Dam (2032 A2†) on the 27th (J-MB). A **Slaty Egret** *Egretta vinaceigula* was at Kazungula (1725 C4) on 7 December (SC) while another was on the Gwebi River north of Lake Manyame (1730 D1†) three days later (AMacD).

Figure 2. Slaty Egret on the Gwebi River.
Photo © Ali MacDonald.

Single **White-backed Night-herons** *Gorsachius leuconotus* reported in January were at Claw Dam, Kadoma (1829 B4) (RP) and at the Gulugi crossing, Chipinda Pools (2131 B4) (AN). Around Harare, individual **Little Bitterns** *Ixobrychus minutus* were south of Ruwa (1731 C3) on 10 December (DBo), on Monavale vlei (1731 C3) a week later (The Babbler 176) and at Marlborough Ponds (1730 D4) on 7 February (CC). The first **Dwarf Bitterns** *I. sturmii* of the season were at Victoria Falls (1725 D4) on 5 December (DN), Monavale vlei (JM) and Kazungula (SC) on the 7th, Blair Dam, Harare (1731 C3), on 15 January (AMacD) and over the road at Ballantyne Park the following day (DD).

White Storks *Ciconia ciconia* appeared in lesser numbers this season. Flocks of about 40 were on Wingate Golf Course, Harare (1731 C1), on 4 January (AF) and nearby at Eskbank Farm on the 27th (DS); 60 were on Kent Estate on 21 February (GT). The last ones noted in March were at Mukadzapela Bay, Lake Kariba (1628 D3), on the 12th (PTe), Harare on the 17th (AF), and a day later at Umguza Farms (1928 D3) (AR). The last straggler moved through Chirundu (1628 B2) on 14 April (MH). **Abdim's Storks** *C. abdimii* also had a poor season with about 200 at Lion's Den (1730 A3) on 12 December (DSm) being the largest flock reported. Most had gone by the fourth week of March but a straggler was in Harare on 27 April (KF) and a late flock of 20 or more was at Victoria Falls Airport (1825 B2) on 1 May (DMacD).

As many as 15 **Black Storks** *C. nigra* were at a drying pool at the Pombadzi-Runde confluence, Gonarezhou (2131 B4), on 28 April (AN), nine were on an Imire Game Park dam (1831 B3) on 13 May (JT) and two soared over Hale Dam, Arden Estate (1730 D2), on 23 May (ND). 12 **Woolly-necked Storks** *C. episcopus* were on Chamabonda vlei, Victoria Falls NP (1725 D3), on 5 December (SC) and one reported from a property on Crowhill Road, Hogerty Hill (1731 C1), on 3 March had apparently been there for a few weeks (KvL).

Over 100 **African Openbills** *Anastomus lamelligerus* flew onto Kent Estate in the early evening of 7 December (GT) and 11 flew northeast over Umwinsidale (1731 C1) on 26 April (KF). On the morning of 2 December, five **Marabou Storks** *Leptoptilos crumenifera* were near the Goromonzi Toll Gate, Harare-Mutare road (1731 C4), and 113 were over Gosho Park, Marondera (1831 B1) (IR). They move through the Mutare area (1932 B1) occasionally and ten circled the municipal rubbish dump on 21 December (GD).

Glossy Ibises *Plegadis falcinellus* were reported from the Save Valley north of Chisumbanje (2032 C3†) in March and May (CCr). A large flock of 50 or so was on a manure heap on Stapleford Farm, Mount Hampden (1730 D2), on 28 April (JWh) and about ten flew from a dam just north of Mvurwi (1730 B2†) on 15 May (IR). A **Hadeda Ibis** *Bostrychia hagedash* on the Shenga River, Matusadona NP (1628 D3), on 2 May (ASm per PTe) was probably the first record from the Park since the Atlas years. A significant record from 2021 that has just come to light is of five that moved onto Mary Ellen Farm, Turk Mine (1928 D2†). A pair bred in the farm garden the following year and raised three chicks. In 2023 another attempt failed when an **African Hawk-eagle** *Aquila spilogaster* took the eggs (PE). Presumably these birds were from the sparse Bulawayo population.

Thirty **Lesser Flamingos** *Phoeniconaias minor* on Mteri Dam, Chiredzi (2131 B3), on 14 December had been replaced by 11 **Greater Flamingos** *Phoenicopterus roseus* two days later (GD). In mid-March one of each species were together for about four days in the catchment bund for the main pump house on the Save River (2032 C3†) (CCr). 14 **Greater** were noted at Masuma Dam, Hwange NP (1826 C2), on 2 December (PDe) and on the 26th (The Babbler 177). Forty or more **Lesser** were at Gwezi (Ingwizi) Dam (2127 B2) on 1 January and at least 32 on Antelope Farm dam (2128 A2†) on 4 January were still there on the 16th (BM).

A large flock of about 60 **Fulvous Ducks** *Dendrocygna bicolor* was on Chabweno Store dam, Enterprise (1731 C2), on 3 December (DS) and a pair was at Mazvikadei Dam, Banket (1730 A2), on 2 April (AMacD). A pair of **White-backed Ducks** *Thalassornis leuconotus* reported from Connemara Lakes on 21 February (SM) was the first record posted from there, although breeding has been suspected for some time (PS).

Two **Yellow-billed Ducks** *Anas undulata* at Ballantyne Park from 24 December to 14 January (AF) were seen with nine newly hatched ducklings on 6 February (DD). This may well be the city's first breeding record for over sixty years as Irwin (1981. *The Birds of Zimbabwe*, page 49) mentioned there had been no Harare breeding records since about 1959. Six **Cape Teal** *A. capensis* were at Kadoma Textiles Dye Ponds (1829 B4) on 6 April (The Babbler 178).

Four male and two female **Southern Pochard** *Netta erythrophthalma* at Malilangwe (2131 B2†) on about 10 December (BF) is a scarce southeast lowveld record. 15 were on Somavundhla Pan, Hwange NP (1927 A1), on 21 May (DMacD). In February, 6 **African Pygmy Geese** *Nettapus auritus* pairs were on a dam in the West Nicholson area (2129 A2) (SN) and some were reported on the Save River in the Chisumbanje QDS (2032 C3†) (CCr). On the southwest border they were prolific on Mbambanyika Dam near Brunapeg (2128 A1) on 5 March (KvL). Eight **Spur-winged Geese** *Plectropterus gambensis* flew over Redhill Farm dam, north of Banket (1730 A4) on 18 December where not seen for many years (DSm), and one was unusual at Greystone Preserve, Harare (1731 C1), on 14 April (NF).

Raptors

A most unusual record was a **Secretarybird** *Sagittarius serpentarius* in front of the viewing platform at Mukuvisi

Woodlands, Harare (1731 C3), on 16 May (J-MB) and what was probably the same bird at Haka Park the following day (DD).

A **Hooded Vulture** *Necrosyrtes monachus* record from near Fort Rixon (2029 A2†) on 29 February (KC) was north of its southern range. A **White-backed Vulture** *Gyps africanus* bearing disc number MR11 seen at a Shangani vulture restaurant (1929 C4) in December (LT) was tagged in Gonarezhou in September 2022. Another with tag MR05 was at a large gathering at a carcass on Malilangwe on 11 May (AH). A **Lappet-faced Vulture** *Torgos tracheliotos* was with other vultures on Nuanetsi Ranch (2130 D1) on 1 March (CCo). In southeast Hwange NP, single immature **White-headed Vultures** *Trigonoceps occipitalis* were on Ngamo Plains (1927 A2) on 13 December, Linkwasha vlei (1927 A2) the following day and at Madison Pan, Makololo Plains (1927 A1), on the 16th (KvL). The largest gathering reported comprised at least 200 **White-backed**, 15 or more **Lappet-faced** and **White-headed**, and a **Cape** *Gyps coprotheres* scattered around five pans near Sinanga, Hwange NP (1827 C3), on 8 May with more flying in (JV).

Yellow-billed Kites *Milvus aegyptius* departed early this season and were not seen after mid-March. Most had gone from Victoria Falls and surrounds as early as mid-January and one seen in the town on 25 February was no doubt on migration (CB). Two interacting **African Cuckoo Hawks** *Aviceda cuculoides* circled from Mukuvisi Woodlands to Hillside on 7 December (IR).

A **Bat Hawk** *Macheiramphus alcinus* pair nested in a eucalyptus tree in the Lion's Den area (1729 B4) and by February had successfully raised a chick. This pair nested in the same tree the previous year but lost nest and chick in a gale. The chick was hand-reared and after being released it stayed around for a while and took bats offered on braai tongs. It was ringed and eventually disappeared, seemingly capable of looking after itself (DSm). An interesting observation is of one hunting bats on 1 March at Makonde Bridge, Malapati (2231 A2), accompanied by a **Wahlberg's Eagle** *Hieraaetus wahlbergi*, **Peregrine Falcon** *Falco peregrinus* and **Dickinson's Kestrel** *Falco dickinsoni* (EvdW). Hockey *et al*. (2005. *Roberts' birds of southern Africa*, VIIth ed.) note that all three species occasionally prey on bats.

Single **European Honey-buzzards** *Pernis apivorus* were at Lake Chivero Bird Sanctuary on 2 December (IR), east of Marondera (1831 B1) on 12 February (LC) and at Haka Park from 19 to 27 February where reported by various observers. A juvenile was at Victoria Falls, on 19 December (CB) and a late individual was still at Mazvikadei on 5 April (BM).

A pair of **Tawny Eagles** *Aquila rapax* was at a nest at Sijarira, Binga area (1727 A2†), on 27 May (TF). On Chamabonda vlei (1725 D3) on 5 December, 27 **Steppe Eagles** *A. nipalensis* and at least 50 **Lesser Spotted Eagles** *Clanga pomarina* fed on termites (SC). In Hwange NP, both species were numerous along the road from Main Camp (1826 D2) through Kennedy vlei (1827 C3) and on to the Ngweshla area (1927 A1) on 2 January (PDe). Other **Lesser Spotted** records comprised some in the Mangaingai area (1629 B1†) in the first few days of December (JMk), up to 100 taking termites over Umguza Irrigation Scheme on 12 December after an inch of rain had fallen the previous day (AR) and a similar number on the Bubye River (2130 D1) on 20 February (KvL). Also, one was seen attempting to catch a **Corn Crake** *Crex crex* – see entry for that species.

A pair of **Ayres's Hawk-eagles** *Hieraaetus ayresii* and a juvenile were at Rhino Safari Camp, Matusadona (1628 C4), on 5 March (PTe). In Harare, three **Long-crested Eagles** *Lophaetus occipitalis* were together in a Mount Pleasant garden (1730 D4) on 27 January (DS) and singles were in Newlands (1731 C3) on 17 and 21 May (IR). Between B and C Camps, Chirundu (1628 B2), on 9 April, an adult **Martial Eagle** *Polemaetus bellicosus* with two juveniles, perhaps indicated a rare instance of two chicks successfully reared together (MH). Outside the National Parks, an immature was over the Suoguru Gap, Umvukwe Range (1630 D4), on 14 May (IR) and one was near Chinhoyi (1730 A4) on 27 May (AM).

Single **African Crowned Eagles** *Stephanoaetus coronatus* were in the Great Dyke area (1730 D1†) on 2 December (CE), at Christon Bank Botanic Reserve (1731 C1) on 21 December (RC), and at Umwinsidale on 6 March, having caught a Vervet Monkey (AMa per JP). Pairs were high over Redhill Farm, Banket, on 29 February (DSm) and at Seldomseen, Vumba (1932 B2), on 26 May (KW). Another couple tended a nearly-fledged chick at Imire Game Park (1831 B3) on 21 March (JT). An **African Fish Eagle** *Haliaeetus vocifer* flew over Newlands on 29 March (IR).

Rufous-breasted Sparrowhawks *Accipiter rufiventris* are scarce within their limited range so one, and later a pair, at Connemara Lakes on 9 February (ACo) is a welcome record. Also of interest is an **African Goshawk** *Accipiter tachiro* record from about 25 km south of Selous in the somewhat remote 1830 A4† Rutara Hills square in January (GL). A **Dark Chanting Goshawk** *Melierax metabates* was in the Gadzema area, north of Chegutu (1830 A1), on 13 April (The Babbler 178).

The season proved too dry for Palearctic harriers. The only **Western Marsh Harrier** *Circus aeruginosus* noted was at Marlborough vlei on 17 December (RC), and **Montagu's** *C. pygargus* and **Pallid Harriers** *C. macrourus* seemed entirely absent. Around Harare in December, five **African Marsh Harriers** *C. ranivorus* quartered over fields near Chabweno Store (1731 C2) on the 3rd (DS) and singles were on Marlborough and Monavale vleis on the 17th (RC, The Babbler 176). Elsewhere, one was at Kazungula on 7 December (SC) and three at The Hideaway, Lake Manyame (1730 D3), on 14-15 December (CC); at Felixburg (1930 B4) singles were at Widgeon Pan and Shashe Dam on 25-27 January (RC) and on the Driefontein grasslands on 12-14 April (RC).

Five **Osprey** *Pandion haliaetus* sightings were obtained in the Chete area of Lake Kariba (1727 B3), from 5 to 8 January (TF) and one was on a Macheke dam (1831 B2†) on 18 February (DCx) where not previously reported. In QDS 1628 C4, late individuals were still at Tashinga on 27 May and at Musango a day later (SE).

Single **Lanner Falcons** *Falco biarmicus* were at the Vumba-Burma valley junction (1932 B1) on 13 December (IR) and were seen twice in the Chisumbanje area (2032 C3†) in February (CCr). A **Eurasian Hobby** *F. subbuteo* was on Sango Ranch, Save Valley Conservancy (2032 A1†), on 20 January (J-MB). Scarce records of the southeast lowveld **Red-necked Falcon** *F. chiquera* population came from south of Chipangayi in the Rupisi QDS (2032 A4†) in January and from the Save Valley north of Chisumbanje (2032 C3†) in March (CCr).

A **Red-footed Falcon** *F. vespertinus* photographed at Gordon's Bay, Lake Kariba (1628 D3†), on 10 March (RMacD) appears to be the first confirmed Lake Kariba record. The first notable **Amur Falcon** *F. amurensis* flock of the season comprised about 50 near Gwebi College, Nyabira (1730 C4), on 8 December (ND). Between 1 and 4 January in Hwange NP, hundreds were south of Somalisa Camp (1927 A1) following good rains (JV), and thousands were between Main Camp and

the Wilderness Concession (PDe) and around Little Makololo (1927 A1) (DDe). Some in unusual areas were at Mangaingai (1629 B1†) early in December (CE) and in the Mayezane QDS (2028 D3†), Matabeleland South, at the end of March (CCr), by which time departure was complete apart from a straggler near Kennedy 2 Pan, Hwange NP (1827 C3), on 25 April (JV).

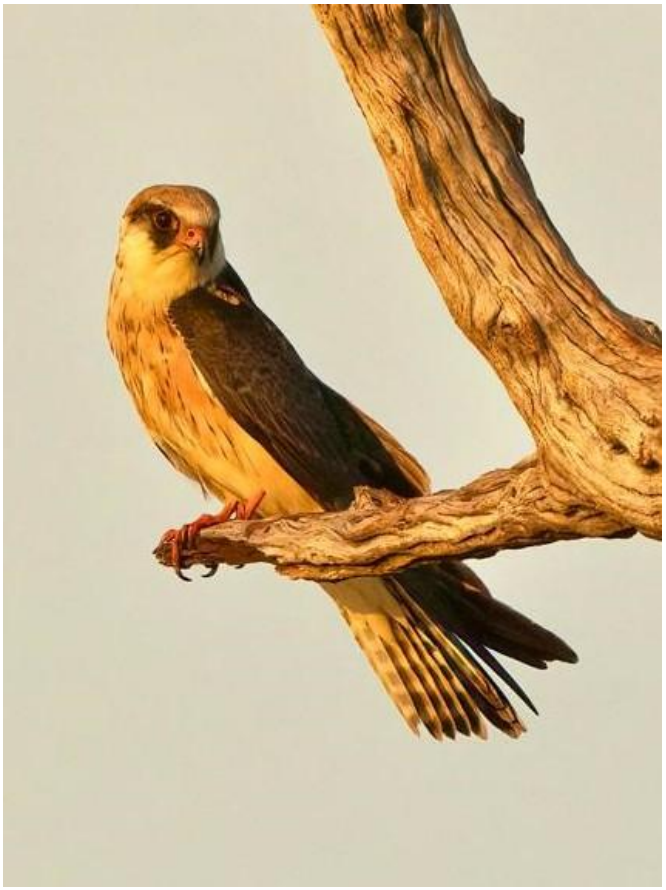

Figure 3. A female red-footed Falcon at Gordon's Bay, Lake Kariba. Photo © Roger MacDonald.

Greater Kestrels *F. rupicoloides* are normally winter visitors to the eastern half of the country so eight were unusual at Widgeon Pan (1930 B4) on 25-27 January (RC). In December, two **Lesser Kestrels** *F. naumanni* were on Oatlands Road near Lake Chivero (1730 D4) on the 2nd (IR), others were at Stapleford, Mount Hampden (1730 D2), on the 6th and 7th (JWh), and about 30 near Gwebi College (1730 C4) on the 8th (ND) were the most reported together for nearly ten years. The last one noted was at Lushongwe, Matopos NP (2028 C2), on 26 March (DS). A **Dickinson's Kestrel** north of Shangani in the Daisyfield QDS (1929 C2†) on 28 February (KC) was well out of range.

Gamebirds, Rails and Cranes

Six **Natal Spurfowls** *Pternistis natalensis* ventured into a Helensvale, Harare (1731 C1), garden on 14 January (TH) and IR reported a sharp increase in records in Newlands gardens during the period. A **Kurrichane Buttonquail** *Turnix sylvaticus* was south of known range in the 2028 D3† Mayezane square in December (CCr) and a **Black-rumped Buttonquail** *Turnix nanus* was on the Driefontein Grasslands (1930 B3) on 25-27 January (RC).

Two **Wattled Cranes** *Grus carunculatus* were at Widgeon Pan on 21 December (J-MB) and 18 were seen at Shashe Dam (1930 B3) on 25-27 January along with a breeding pair of **Grey Crowned Cranes** *Balearica regulorum* with one egg in the nest. Another pair had two eggs at Nyororo Farm, Chatsworth (1930 B4), at the same time (RC) and 24 were on Mary Ellen Farm, Turk Mine (1928 D1), on 21 May (AE).

The first, and only, **Corn Crake** *Crex crex* of the season successfully avoided a swooping **Lesser Spotted Eagle** on Redhill Farm, Banket, on 3 January (DSm). A fledged **African Crake** *Crecopsis egregia* chick on Woodlands Road, Victoria Falls, on 6 January indicates the adults probably settled down to breed immediately on arrival (CB). One was unusual at Sango (2032 A1†) on 26 January (J-MB) as was a **Baillon's Crake** *Porzana pusilla* at Marlborough Ponds on 28 January (LC). After a **Striped Crake** *Aenigmatolimnas marginalis* was seen at Monavale vlei on 3 January (JM) good numbers were found there a week later (LC); one was at Haka Park on 28 January (PZ).

A **Buff-spotted Flufftail** *Sarothrura elegans* at Mhara River Bush Camp, Chitake-Mhara confluence (1629 B1†), on 5 January (J-MB) became only the second Zambezi Valley record in the last 35 years. One was heard on Enhoek Estate, Chipinge (2032 B2), on 25 January (GG) where, according to the owner, they have been noted annually for well over 40 years.

January **Allen's Gallinule** *Porphyrio alleni* records came from south of Selous in the 1830 A4† Rutara Hills square (GL), Greengrove Dam, Harare (1731 C3) (DD), Marlborough vlei (RC) and Ballantyne Park (DD) where not reported previously. Another was in the Arcturus area (1731 C4†) early in February (LC). **Lesser Moorhens** *Gallinula angulata* reported in January were at Ballantyne Park, Greengrove Dam (DD) and Shumba Pans, Hwange NP (1826 C4) (DSi). One was at a gravel pit on the Eiffel Blue road (1829 B4) on 7 February (The Babbler 177).

Thirteen **Kori Bustards** *Ardeotis kori* were noted on Chamabonda vlei (1725 D3) on 5 December (SC) and three were on Nuanetsi section of Nuanetsi Ranch (2130 D3) on 1 March (CCo).

Waders and Terns

Single **Lesser Jacanas** *Microparra capensis* were on the Gwebi River north of Lake Manyame (1730 D1†) on 10 December (AMacD), at The Hideaway, Lake Manyame, on 14-15 December (CC) and near Chisumbanje (2032 C3†) in mid-February (CCr). A newly-flooded pool on Chamabonda vlei attracted a pair of **Greater Painted-snipe** *Rostratula benghalensis* on 7 December (CB) and single females were at Malilangwe (2131 B2) on 21 and 31 December (BF, SCn) and at Greengrove dam on 19 February (PZ). One in the Driefontein area (1930 B4) on 25 January (RC) was southwest of normal range although an isolated 1996 record exists from the Nyororo River in the same QDS.

A **Common Ringed Plover** *Charadrius hiaticula* at the Victoria Falls Crocodile Farm drainage ponds on 20 March (CBr) may have been moving north. Five **White-fronted Plovers** *C. marginatus* were at the Save River on Sango (2032 A4) on 31 January (J-MB). **Grey Plovers** *Pluvialis squatarola* can touch down here briefly on their way south, although the vast majority by-pass us. One at Little Somavundhla (1927 A1) on 2 and 3 December (GTh per KvL) and on 14 and 16 December (KvL) was presumably the same individual.

Two **Senegal Lapwings** *Vanellus lugubris* at Malilangwe (2131 B2) on 31 December (SCn) was the first record from there for 15 years. Three **Long-toed Lapwings** *V. crassirostris* were on the Mana floodplain in early December (DB) when one was

seen at Kazungula (SC); another was at Lake Manyame (1730 D3) on 2 January (RMacD).

Figure 4. A pair of Greater Painted Snipe at Chamabonda vlei, Victoria Falls. Photo © Colin Baker.

A **Green Sandpiper** *Tringa ochropus* was on a flooded vehicle track near Masuwe Helipad, Victoria Falls, before sunrise on 16 December (CB). 80 or more **Ruff** *Philomachus pugnax* were at Kadoma Textiles Dye Ponds on 2 December (The Babbler 176). An **African Snipe** *Gallinago nigripennis* at Victoria Falls Crocodile Farm ponds on 16 December (CBr) was presumably of the race *angolensis* on northward migration.

At Lake Chivero Bird Sanctuary, *c*.298 **Pied Avocets** *Recurvirostra avosetta* were in the Marimba estuary on 2 December (IR) and five were at the Salt Pan, Hwange NP (1826 C1), in the third week of May (CBr). **Black-winged Stilts** *Himantopus himantopus* were on the Save River east of Chibuwa (2032 C3†) on 9 December (CCr) and at Insiza (Mayfair) Dam, Mbalabala (2029 A4†), on 5 January (JBo).

A **Spotted Thick-knee** *Burhinus capensis* range extension record came from near Natisa, Matabeleland South (2028 D3†), in December (CCr). **Temminck's Coursers** *Cursorius temminckii* found south of Masoka (1630 A1†) (IM) in December were further north in the Valley than expected, and a **Three-banded Courser** *Rhinoptilus cinctus* in the Pandamasuie Forest area (1825 B1†) in May (SL) was west of normal range. Most unusual in suburbia was a **Bronze-winged Courser** *R. chalcopterus* at Ballantyne Park on 1 December (DW).

A **Collared Pratincole** *Glareola pratincola* at Insiza (Mayfair) Dam, Mbalabala (2029 A3†), on 9 December (JJ) was far from its normal range. In mid-February a lone sub-adult was in the Musango Camp area where no adults had been seen for a number of weeks (SE). There is an annual pre-migratory build-up of these birds towards the end of summer in this area, but in this dry year it is likely most had moved out by this time. 27 northbound **Black-winged Pratincoles** *G. nordmanni* were at Guvalala Pan, Hwange NP (1826 D3), on 7 March (AR).

Six **Caspian Terns** *Hydroprogne caspia* at Mandavu Dam (1826 C2) on 6 March (AR) is an exceptional number for Hwange NP and follows a previous record of a single bird there in January 2016. In December, six **Whiskered Terns** *Chlidonias hybrida* were at The Hideaway, Lake Manyame (CC) and three in full breeding plumage were at Shumba Pan (The Babbler 177). At least nine **African Skimmers** *Rynchops flavirostris* were at Mandavu Dam at the end of January (DSi). A few were on the Runde River in the Chitove Crossing/Mahove area of Gonarezhou (2132 A4) between 4 and 9 May (CS) with 13 seen at the Crossing on the 21st (BF).

Other non-Passerines

Rock Doves (Feral Pigeons) *Columba livia* were reported from the Masoka area, Zambezi Valley (1630 A1†) (LC) and east of Chipinge in the Mount Selinda QDS (2032 B3†) in January, and from Chipangayi, Save Valley, in the 2032 A2† and 2032 A4† squares in February (CCr). A **Speckled Pigeon** *C. guinea* at Somalisa Camp (1927 A1†) on 3 January (BN) is the first record from that area of Hwange NP. An **Eastern Bronze-naped Pigeon** *C. delegorguei* at Leopard Rock Golf Course (1932 B2), on 18 May (GD) is an infrequent record from that part of the Vumba. An **African Mourning Dove** *Streptopelia decipiens* in a Chegutu garden (1830 A1†) on 21 April (DK) was further south in the Midlands than the northern population is known to extend.

Five **Grey-headed Parrots** *Poicephalus fuscicollis* flew over Kent Estate on 1 December (GT), four were at Mhara Bush Camp (1629 B1) on the 30th (DH) and six flew over Redhill Farm, Banket, on 3 January (DSm). At Victoria Falls, two were seen on 28 January (JB) and three on 9 May (CB); and in the southeast seven were at Sango Ingwe Lodge (2032 A1) on 21 March (J-MB) and eight at Tambahata Pan, Gonarezhou (2132 A4), on 5 May (TM).

Two parrots deemed to be **Brown-headed** *P. cryptoxanthus* flew over Northwood, Harare (1731 C3, on 27 January (CSe). There are two previous Harare records of this southeast lowveld bird, a pair in November 2006 and one in September 2009. Varying numbers of **Meyer's Parrots** *P. meyeri* were recorded in all months except April in the Newlands/Highlands area (IR) and four were in a Chisipite, Harare (1731 C3) garden on 26 March (BL). Following recent records in the Newlands/Eastlea area, **Rosy-faced Lovebirds** *Agapornis roseicollis* were heard in a Newlands garden on 1 January (IR).

Common Cuckoos *Cuculus canorus* in unusual areas were a few kilometres north of Shangani (1929 C2†) on 29 February (KC) and near Milibizi (1727 C3†) in the second week of March (CSa) when probably moving north. A **Great Spotted Cuckoo** *Clamator glandarius* was heard at Mhara River Bush Camp (1629 B1†) on 5 January and one was on Sango Ranch (2032 A2†) on 27 January (J-MB). **A Coppery-tailed Coucal** *Centropus cupreicaudus* at Kazungula on 7 December (SC) was the first one reported since November 2005.

African Grass-owls *Tyto capensis* and **Marsh Owls** *Asio capensis* are rarely reported from the extreme southeast but there were February records of the **Grass** in the Chisumbanje 2032 C3† square and the **Marsh** in the Chipangayi area, Save Valley (2032 A2†) (CCr). In a Newlands garden, **African Wood Owls** *Strix woodfordii* were noted seven times between 17 March and 6 May, and **Southern White-faced Scops-owls** *Ptilopsis granti* were recorded on 16 March and 20 April (IR). Up to three **African Barred Owlet** *Glaucidium capense* records from Christon Bank (1731 C1†) during December (PZ, RC) denote movement upstream on the Mazowe.

A **Verreaux's Eagle-owl** *Bubo lacteus* on Marshbrook Farm, Featherstone (1831 C1†), on 29 December (CWd) was a scarce record from the central part of the country. Two were in Lake Chivero Game Park on 13 January (TC *et al*.) and a pair at Umguza Farms on 24 and 25 February (AR) follows a 2018 record from there.

Few **European Nightjar** *Caprimulgus europaeus* records have come from south of 18°S in the Midlands so one near Redcliff (1929 B1†) in December (IR) is exceptional. A male

Pennant-winged Nightjar *Macrodipteryx vexillarius* with pennants intact was on a Bindura farm (1731 A4) on the late date of 24 March (RK). **African Black Swifts** *Apus barbatus* were on the Chirunda River east of Mubayira (1830 A4†) early in May (GL) and **Mottled Spinetails** *Telacanthura ussheri* were noted at Mhara River Bush Camp (1629 B1†) on 5 January (J-MB).

Single **Narina Trogons** *Apaloderma narina* were at Rifa Camp, Chirundu (EB) and at Chirundu Safari Lodge (1628 B2) (TN) on 4 and 8 December respectively. Three were at Lasting Impressions Camp, Kadoma (1829 B4), in January (RP). This observer first found this species on farms northeast of Kadoma in 2002. A **Half-collared Kingfisher** *Alcedo semitorquata* at La Rochelle, Penhalonga (1832 D3), on 24 May (J-MB) followed an April 2023 record from there. A very late **African Pygmy Kingfisher** *Ispidina picta* was at Rhino Safari Camp, Matusadona NP, on 28 May (PTe) and single **Woodland Kingfishers** *Halcyon senegalensis* at Mukuvisi Woodlands on 7 April and 5 May (IR) were also late and no doubt moving north.

Small numbers of **Blue-cheeked Bee-eaters** *Merops persicus* were at Kazungula on 7 December (SC), Shumba Pan (1826 C4) at the end of January (DSi), at Chirundu on 18 March (TN) and 9 April (MH) and over Dete vlei (1826 D2) on 15 April (JV). In the southeast, some were at Sango (2032 A4) on 17 January, Chinga Pan (2032 A2) on 8 April (J-MB) and at Gonarezhou Base Camp on the Save River (2132 A4) on 20 April (CS). A **Southern Carmine Bee-eater** *M. nubicoides* was on Sango (2032 A1†) on 20 January (J-MB), two over Monavale vlei on 21 January (DB) were part of the mid-summer movement across the central watershed and three were at Sandy Spruit, Matopos (2028 B1), on 9 March (DSi). An unseasonal **Swallow-tailed Bee-eater** *M. hirundineus* record came from Masoka (1630 A1) on 11 January (MZ) where a similar occurrence was reported in January 2021.

Two **Racquet-tailed Rollers** *Coracias spatulatus* near Shangani (1929 C1†) on 2 January (SB) were marginally out of range. A nice flock of 20 or more **Broad-billed Rollers** *Eurystomus glaucurus* hawked insects on Kent Estate on 21 January (GT). A **Trumpeter Hornbill** *Bycanistes bucinator* record from north of Shangani Mine (1929 C2†) in February (KC) was northeast of this species' southern range, and a **Southern Red-billed Hornbill** *Tockus rufirostris* west of Alaska Mine at Nyamuswa Ranch (1729 B4†), on 7 February (DSm, JMk) was further south than expected. A **Southern Ground-hornbill** *Bucorvus leadbeateri* on Dormervale Farm, Marondera North (1831 B1), on 23-24 December (MW) must be unusual there these days.

Brown-backed *Prodotiscus regulus* and **Green-backed Honeybirds** *P. zambesiae* were on Redhill Farm, Banket (1730 A4) on 3 March (DSm). An unusual Eastern Highlands **Bearded Woodpecker** *Dendropicos namaquus* record came from near Sanyatwe, Juliasdale (1832 B3†), in February (LH). Two **Olive Woodpeckers** *D. griseocephalus* of the seldom-reported Zambezi NP population were near Kandahar Island (1725 D4) on 18 April (CBr).

Passerines

The Masoka area is prime **African Pitta** *Pitta angolensis* country but a remarkable record nonetheless was a pair in Mackenzie Zirota's garden in the Camp on 17 December. He was alerted to their presence by his four-year-old son! Two were still in the area on 20 April (MZ). An unusual Lake Kariba record was one in the Gachegache River area (1628 D2) on 22 December (MD). A late departing bird was at Mururu Camp, north Dande Safari Area (1530 C3), on 5 May (DN).

Single southbound **Dusky Larks** *Pinarocorys nigricans* were on Sango Ranch (2032 A2) on 4 December (BC), at Gosho Park on 29 December (DBo) and at Shumba Pan in the last week of January (DSi). Return movement was noted in May at Lomagundi College, Chinhoyi (1730 A3), on the 4th (JMk), in Zambezi NP (1725 D3) on the 5th (CB) and on Monavale vlei on the 27th (JM). Late season **Red-capped Larks** *Calandrella cinerea* in the Mangaingai area (1629 B1†) on 2 December (CE) were further north in the Valley than the main Mashonaland range suggests, while **Chestnut-backed Sparrowlarks** *Eremopterix leucotis* at Masoka (1630 A1†) in mid-December (IM) were further south along the Valley floor than usual. A small group of **Grey-backed Sparrowlarks** *E. verticalis* at Scott's Pan (1927 A2†) in mid-December had possibly moved that far east as a large section of southeast Hwange NP had been burnt (KvL).

A few **Blue Swallows** *Hirundo atrocaerulea* were still around on 14 April near Mount Inyangani car park (1832 B4) (DW). A winter build-up of 24 **Pearl-breasted Swallows** *H. dimidiata* was noted near Old Mutare (1832 D3) on 30 May (GD), a good number of this relatively scarce species. Although uncommon around Harare, a **Greater Striped Swallow** *Cecropis cucullata* was on Monavale vlei on 9 December (IR).

On 2 December, **Sand Martins** *Riparia riparia* were at Komani vlei (1730 D2) and were with **Brown-throated Martins** *R. paludicola* at Lake Chivero Bird Sanctuary. More **Brown-throated** and a lone **Eastern Saw-wing** *Psalidoprocne orientalis* were below a small mine dam on the Great Dyke (1630 D4) on 16 May (IR). An impressive flock of 30-40 **Eastern Saw-wings** was at Gletwyn Dam, Mandara (1731 C3), on 25 January (JBa, LC). A **Eurasian Golden Oriole** *Oriolus oriolus* at Masoka (1630 A1†) on 9 March (MZ) is a scarce Zambezi Valley record, and a late individual was in Hwange NP on 14 April (RMacD).

In years gone by **Cape Crows** *Corvus capensis* were often found along the main road in the Macheke-Headlands farming area and nested on telephone poles. Sadly, changes in land utilisation have resulted in their complete disappearance along that stretch (AF). On 17 May a single **Pied Crow** *C. albus* flew south over the Great Dyke (1630 D4) where considered unusual, and two **White-necked Ravens** *C. albicollis* were seen there on the 14th and 15th (IR). This **Raven** is now seen regularly at Tokwe-Mukosi Dam (2030 D4) (MA).

A **Miombo Tit** *Melaniparus griseiventris* at Mukuvisi Woodlands on 10 December is a species becoming more difficult to find there (IR). **Cape Penduline-tits** *Anthoscopus minutus* at the Lion and Elephant, Bubye River (2130 D1†), early in April (GD) were quite some distance from records shown in the Atlas.

Two **African Red-eyed Bulbuls** *Pycnonotus nigricans* on Phole Phole Farm, Umguza (1928 D3†) on 10 May was AR's first record for the farm in 37 year's residence, although the Atlas contains records from the 1928 D2 QDS immediately to the northeast. A **Sombre Greenbul** *Andropadus importunus* at Shangani Ranch (1929 C2†) on 16 March (LT) was far to the west of its eastern border area range. In the past three years, wanderers have been found in Harare, Marondera and Headlands, but its occurrence in Matabeleland is extraordinary. **Eastern Nicators** *Nicator gularis* are probably no more than spasmodic vagrants at Victoria Falls, so one at Elephant Camp (1725 D4) on 19 January (SC) is worth mentioning.

A **Groundscraper Thrush** *Psophocichla litsitsirupa* was at Borrowdale Park Race Course on 6 April and four interacted in the same area on 26 May (IR). A couple of **Miombo Rock-thrushes** *Monticola angolensis* at Hivu Nursery, Vumba, on 20 January (PZ) were unusual in a thick forest area as they have only been sparsely found on the Vumba previously in Msasa woodland.

A **Familiar Chat** *Oenanthe familiaris* at Chisipite Shopping Centre on 24 December (DD) follows the first record in that suburb a few months previously. An exceptional record is an **Arnot's Chat** *Myrmecocichla arnoti* close to Harare at Christon Bank (1731 C1†) on 3 March (PZ). This species was first found at Hippo Pools in 2011 so movement upstream on the Mazowe may account for this bird. A **Red-capped Robin-chat** *Cossypha natalensis* at Rifa Camp on 10 and 11 December was EB's first record in 13 year's residence there. It is described as a rare visitor in The Birds of Rifa Camp, Chirundu, Zimbabwe, 1987 - 2014 (Maasdorp, L.& Cotton, A. 2019. *Honeyguide* **65**: 56). Another wanderer at Musango (1628 C4) on 19 December (SE) appears to be the first Ume Basin record since 1997.

Single **Thrush Nightingales** *Luscinia luscinia* were in the Burma Valley (1932 B2) on 19 December (BMb) and at Masoka on 5 and 15 January (TD, MZ). **Boulder Chats** *Pinarornis plumosus* in the Mangaingai area (1629 B1) in the first week of December (JMk *et al*.) follow the first records from that square in the two previous months. **Bearded Scrub-robin** *Erythropygia quadrivirgata* and **Yellow-breasted Apalis** *Apalis flavida* were unrecorded in the Atlas in much of Matabeleland south of 19°S. Records of both species from near Bushtick, southeast of Bulawayo (2028 B2†), in March (YS) therefore denote significant expansions of range, both species presumably having wandered from somewhere to the east.

Good numbers of **Garden Warblers** *Sylvia borin* moved through the Vumba on 24 and 25 February (PZ, BMb), and one at Greystone Preserve on 9 March is a possible departure date (The Babbler 177). There was a noticeable movement of **Common Whitethroats** *S. communis* through the country early in December with singles at Haka Park (J-MB) on the 2nd, in the Mangaingai area (1629 B1†) on the 6th (NP) and on Chamabonda vlei a day later (CB). A **Chestnut-vented Tit-babbler** *S. subcaerulea* on a Chegutu farm (1830 A1) on 3 April (DBo) was at the northern limit of its known range.

Great Reed Warblers *Acrocephalus arundinaceus* were only noted in Harare with singles at Monavale vlei on 17 December (The Babbler 176), Mukuvisi Woodlands on 14 January (JP) and Marlborough vlei on the 19th (RC). The only **Broad-tailed Warblers** *Schoenicola brevirostris* reported were a pair at Haka Park on 19 December (PZ). Distribution of the **African Reed Warbler** *A. baeticatus* is fragmented and a record from near Lion's Den (1729 B4†) on 5 December (CE) adds another isolated dot to its distribution map. Two **Barratt's Warblers** *Bradypterus barratti* at Seldomseen on 25 May (J-MB) were late in moving to lower altitude for the winter.

Bar-throated Apalises *Apalis thoracica* were slightly out of range just north of Shangani (1929 C2†) in February (KC) and a **Yellow-breasted Apalis** *A. flavida* at Christon Bank on 9 December (IR) was from the spasmodically reported population on the northern fringe of Harare. **Grey-backed Camaropteras** *Camaroptera brevicaudata* were seen a couple of times in January in the 1830 A4† Rutara Hills square about 25 km south of Selous (GL). **Wren Warblers** slightly out of range were two **Barred** *Calamonastes fasciolatus* about 45 km north of Beitbridge on the Masvingo road (2130 C4†) on 5 May (GD) and a **Stierling's** *C. stierlingi* just south of Bulawayo (2028 B1†) in January (YS).

It has been many years since **Wing-snapping Cisticolas** *Cisticola ayresii* were last recorded in the vicinity of Harare so of significance were displaying birds at Komani vlei on 2 December (IR). Single **Pale-crowned Cisticolas** *C. cinnamomeus* were on Marlborough vlei on 8 and 17 December (RC) and 28 January (LC) and at Haka Park on 21 December (PZ). Some were on the Driefontein Grasslands (1930 B3†) on 25-27 January (RC).

In December **Grey Tit-flycatchers** *Myioparus plumbeus* were at Kadoma Textiles dam on the 2nd (The Babbler 176) and at Seldomseen on the 12th where a **Pale Batis** *Batis soror* record the following day (IR) was only the second Vumba sighting. The first was a pair at Leopard Rock in June 2020. **Black-throated Wattle-eyes** *Platysteira peltata* are known to inhabit the Mukuvisi riverine woodland, but two moving along a reedbed on 2 December (J-MB) were in unusual habitat. **African Paradise Flycatchers** *Terpsiphone viridis* started sitting on eggs in the Kent Estate garden on 6 March (AvL). This is later than the Zimbabwe laying period of September to February given by Hockey *et al*. (2005). *Roberts' birds of southern Africa*, VIIth ed., p. 687.

After heavy overnight rain a **Mountain Wagtail** *Motacilla clara* appeared in a Greendale, Harare (1731 C3) garden on 4 January (TMt). A few **Yellow Wagtails** *M. flava* were at Gwebi Dam on 3-5 December (NN, JWh); two were at The Hideaway, Lake Manyame, on 14-15 December (CC) and a single was at Redhill Farm, Banket (1730 A4) on 23 March (DSm).

Lesser Grey Shrikes *Lanius minor* seen in December and January in the Chisumbanje area (2032 C3†) (CCr) were infrequent southeast lowveld records. As many as five **Bokmakierie** *Telophorus zeylonus* were seen towards the south of the Chimanimani (1933 C3) on 6 April (TMu) and a pair of **Gorgeous Bush Shrikes** *T. viridis* was east of Chipinge (2032 B2) on 12 April (GG).

Common Mynas *Acridotheres tristis* found in remote locations on 4 January were at Chitake, Zambezi Valley (1629 A2†) and Siyakobvu on the Ume River (1728 A2†) (J-MB). One at Gateway Gardens (1932 B1†) on 5 January (KW) appears to be the first Vumba record. **Miombo Blue-eared Starlings** *Lamprotornis elisabeth* were in an early-flowering *Acrocarpus* tree in a Newlands garden on 18 May making this the third year they have been attracted to this food source. About 30 **Red-winged Starlings** *Onychognathus morio* were also present on 23 May (IR). Nine **Yellow-billed Oxpeckers** *Buphagus africanus* were on hippos in the Chete area (1727 B3) on 3 January (TF). Hippos are mentioned by Hockey *et al*. 2005, page 973, but are omitted where specific reference to Zimbabwe is made. Two reported near kudu on Shangani Ranch (1929 C2†) in March (KC) may have wandered from the Matopos population.

A significant **Copper Sunbird** *Cinnyris cupreus* record was one on the northern Hwange NP boundary near Robins Camp (1825 D2†) in February (KR). It was listed as a vagrant by Hustler (1986. A revised checklist of the birds of Hwange National Park. *Honeyguide* **32**: 80), but during the Atlas years it was not recorded in the western part of the country south of Victoria Falls. Two **Marico Sunbirds** *C. mariquensis* at The Hideaway on 14-15 December (CC) were infrequent visitors to Lake Manyame. A male **Variable Sunbird** *C. venustus* on Redhill Farm, Banket (1730 A4), on 2 January and a pair nine days later were DSm's first records for the farm. Thereafter, a second pair was seen on 13 May. This species was first reported

in the Banket/Mazvikadei area in 1999 and although BM has lived at Mazvikadei since 2004 she has never recorded them. The provenance of these latest birds is therefore uncertain.

Scarlet-chested Sunbirds *Chalcomitra senegalensis* nested this season in the same tree in a Mazvikadei garden they have used for five years or more. They successfully raised three clutches with two chicks hatching on 28 October, and single chicks appearing on 13 January and towards the end of February (BM). Triple brooding in this species occurs occasionally. A **Collared Sunbird** *Hedydipna collaris* made an unusual appearance at Jean's Walk, near Ruwa (1731 C4†), on 3 February (LC). There are records from near the Mazowe at Glen Forest in 2002 and Christon Bank in 2013 but this sighting is far removed from that river's headwaters. Four **Western Violet-backed Sunbirds** *Anthreptes longuemarei* interacted noisily on a bare tree at the Vumba-Burma valley junction (1932 B1) on 13 December (IR).

White-browed Sparrow-weavers *Plocepasser mahali* were not recorded in the Atlas south of 18°S in a vast tract of the country in the east and southeast, so some near Chisumbanje (2032 C3†) in March (CCr) is an exceptional record. **House Sparrows** *Passer domesticus* were at high density housing in Mvurwi (1730 B2) on 17 May (IR). **Cuckoo Finches** *Anomalospiza imberbis* in small numbers were at Komani on 2 December (JW) and on Borrowdale vlei a day later (KD), while a significant isolated record came from near Shangani Mine (1929 C2†) in February. In the same area to the north of Shangani (1929 C2†) **Yellow-mantled Widowbirds** *Euplectes macrourus* were recorded twice in February (KC). They are rarely found west of 30°E. Neither are they normally present south of 20°S but were noted in the Chisumbanje area (2032 C3†) in December (CCr).

Red-throated Twinspots *Hypargos niveoguttatus* in the Victoria Falls Rain Forest on 4 April (UL) were the first reported from there for some while. A pair was in a Stapleford, Mount Hampden (1730 D2) garden in March and April (JWh). **Grey Waxbills** *Estrilda perreini* are seldom reported from the Vumba and some at White Horse Inn (1932 B1) on 24 December (GW) could be the first record from that site.

Two small **African Quailfinch** *Ortygospiza atricollis* flocks were active along the Victoria Falls Airport boundary fence (1825 B2) on 27 December (DT). 50 or more were on the Driefontein Grasslands on 25-27 January where three **Locustfinch** *Paludipasser locustella* were seen. Six **Locustfinch** were nearby at Shashe Dam (1930 B3†) on the same trip and another two were at Driefontein on 12-14 April (RC). Two **Magpie Mannikins** *Lonchura fringilloides* were in the Chabweno Store dam area, Enterprise (1731 C2), on 3 December (DS). A **Purple Widowfinch** *Vidua purpurascens* record from Katiyo (1833 A3†) (LC) in February may indicate marginal range expansion from the Nyanga Highlands, and in the same month they were out of range near Shangani Mine (1929 C2†) (KC).

Black-eared Seedeaters *Crithagra mennelli* require relatively undisturbed woodland but continue to be found at Christon Bank. Some were at the Vumba-Burma Valley junction on 13 December along with **Cabanis's Buntings** *Emberiza cabanisi*. On the Great Dyke, **Cabanis's** were the dominant bunting during the 13-17 May visit but **Golden-breasted Buntings** *E. flaviventris* were not seen at all (IR). **Cape Buntings** *E. capensis* were at Cecil Kop, Mutare (1832 D3), on 20 May (GD) and **Cinnamon-breasted Buntings** *E. tahapisi* were at the Borrowdale Park Race Course buildings on 16 April (IR). **Lark-like Buntings** *E. impetuani* in new territory were at the Lion and Elephant, Bubye River (2130 D1†), early in April (GD).

Arrivals

African Crake 3 December Banket (DSm), 6 December Harare (JM), 7 December Chamabonda vlei (CB), 16 December Shangani (LT); **Swallow-tailed Bee-eater** 9 March Senuko (CS), 5 April Harare (JBa); **European Roller** *Coracias garrulus* 7 December Macheke (DCx) and Chamabonda vlei (CB); **Red-capped Lark** 4 March Chamabonda vlei (AF-W); **Garden Warbler** 2 December Harare (J-MB) and Victoria Falls (CB).

Departures

Abdim's Stork 24 March Dete vlei (JV), 27 April Harare (KF), 1 May Victoria Falls (DMacD); **Yellow-billed Kite** 25 February Umguza (AR) and Victoria Falls (CB), 1 March Bubye Village (2130 C2) (NMt), 4 March Nyanga (KW), 5 March Dete vlei (JV) and Vumba (KW), 7 March Harare (SH), 11 March Kadoma (JMa), 16 March Surrey Store (1831 A2) (CC); **Wahlberg's Eagle** 18 March Sango (J-MB); **Eurasian Hobby** 8 March Matusadona NP (PTe), 4 April Harare (IR); **African Crake** 10 April Banket (DSm); **Crowned Lapwing** *Vanellus coronatus* 2 December Komani vlei (IR); **Common Sandpiper** *Actitis hypoleucos* 12 April Mana Pools (SH), 20 April Gonarezhou NP (CS); **Wood Sandpiper** *Tringa glareola* 8 April Sango (2032 A2) (J-MB), 12 April Mana Pools (SH); **Common Greenshank** *T. nebularia* 12 April Mana Pools (SH); **Little Stint** *Calidris minuta* 1 April Guvalala Pan (SA); **Rock Pratincole** *Glareola nuchalis* 28 January Zambezi NP (CSi).

Red-chested Cuckoo *Cuculus solitarius* 4 April Harare (IR); **Great Spotted Cuckoo** 24 March Sango HQ (2032 A1) (J-MB); **Levaillant's Cuckoo** *Clamator levaillantii* 7 April Harare (IR); **Jacobin Cuckoo** *C. jacobinus* 1 April Troutbeck (DS), 2 April Sango (J-MB), 8 April Harare (IR); **African Emerald Cuckoo** *Chrysococcyx cupreus* 18 March Chirundu (TN); **Diderick Cuckoo** *C. caprius* 2 April Sango (J-MB), 4 April Harare (IR); **Black Coucal** *Centropus grillii* 7 March near Lilfordia (JWh); **African Pygmy Kingfisher** 26 March Mount Hampden (JWh), 28 May Matusadona NP (PTe); **Woodland Kingfisher** 30 March Chiredzi (AH), 9 April Chirundu (MH), 5 May Harare (IR); **Grey-headed Kingfisher** *Halcyon leucocephala* 24 March Harare (JBa); **European Bee-eater** *Merops apiaster* 2 April Sango (J-MB) and Penhalonga (ST), 8 April Umguza (AR), 10 April Marondera South (SC), 12 April Mana Pools (SH) and Driefontein (RC), 15 April Bulawayo (TF), 18 April Harare (JBa), 20 April Zambezi NP (JB); **European Roller** 15 March Matusadona (SH), 17 March Chamabonda vlei (SC), 2 April Beatrice (JWh); **Broad-billed Roller** 7 March Harare (SHi), 11 March Victoria Falls (CB), 24 March Sentinel Ranch (EvdW).

Barn Swallow *Hirundo rustica* 2 April Sango (J-MB), 14 April Bulawayo (TF), 16 April Harare (IR), 20 April Kadoma (The Babbler 178); **Banded Martin** *Riparia cincta* 21 April Harare (DD); **African Golden Oriole** *Oriolus auratus* 25 May Seldomseen (J-MB); **Capped Wheatear** *Oenanthe pileata* 7 December Chamabonda vlei (CB); **Willow Warbler** *Phylloscopus trochilus* 14 March Victoria Falls (CB), 7 April Harare (IR); **Spotted Flycatcher** *Muscicapa striata* 24 March Sango HQ (J-MB) and Dete vlei (JV), 26 March Matopos (DS); **African Paradise Flycatcher** 21 May Hwange Safari Lodge (SA), 22 May Hippo Pools (SCh), 23 May Banket (DSm), 24 May Musango (SE) and Matusadona NP (PTe), 28 May Binga (TF); **Tree Pipit** *Anthus trivialis* 27 March Seldomseen (BMb); **Lesser Grey Shrike** 6 April Gonarezhou (EvdW), 12 April

Mana Pools (SH), 15 April Bulawayo (TF), 17 April Dete vlei (JV), 19 April Banket (DSm), 20 April Matusadona (DC), 23 April Masoka (MZ); **Red-backed Shrike** *Lanius collurio* 8 April Sango (2032 A2) (J-MB) and Chipinge (GG), 12 April Mana Pools (SH) and Driefontein (RC), 13 April Harare (The Babbler 178), 15 April Bulawayo (TF), 21 April Zambezi NP (CB); **Violet-backed Starling** *Cinnyricinclus leucogaster* 5 May Zambezi NP (CB), 29 May Harare (AMacD).

OBSERVERS

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Book Review

Field Guide to the Birds of Malawi

Bentley Palmer & John Wilson

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This book is a more than adequate introduction to the birds that occur in Malawi and it has photographs of most of Malawi's 650 species. It includes information on the birds that occur in 24 protected areas with information and photographs of their unique habitats and special species that occur there.

A general map is included which indicates where most of the protected areas are, and some of the other interesting habitats and relief, but there are no distribution maps for any of the bird species considered.

This field guide is based on photographs of the species concerned, and gives some information on their size, habits and habitats and how to identify them. The inclusion of the vernacular names and what they mean for each of them allows widespread use of the book. Interesting information about some birds is included and there are some comments about the conservation status of some species. It would have been instructive to have included status of rare vagrants, so as to alert users of the likelihood of seeing such species – the Black-tailed Godwit, for example.

Photographs of juveniles, when they are substantially different to adults or unusual plumages like melanism, are included as an aid to identification, and the photographs are, for the most part, of good quality and enable the key features of the species to be seen. The identification of most of photographed birds was mostly accurate although I thought that the photograph of the adult Ayres's Hawk-eagle was more likely to be the barred form of a European Honey Buzzard.

This book is presumably available in Malawi and if so, it is a great step forward in promoting awareness of the avian diversity there. There are only a limited number of field guides that cover the gap in central Africa between East and Southern Africa and this book goes some way to filling this. Continental guides do include Malawi but these books are often unavailable in the countries they cover and are used mostly by twitchers who visit these areas to add to their life lists. Local birders are often left out and these books are mostly unavailable or too expensive for local people. This book fills a need by providing a foundation for an introduction to bird watching. It does not include some of the more difficult to identify species, like the migratory warblers, but as an introduction to bird watching in Malawi it is very adequate.

Kit Hustler

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